DOCUMENT RESUME

ED 252 868 CS 208 738

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TITLE The Council for Programs in Technical and Scientific Communicati[illegible]roceedings (7th, Buena Vista, Florida, February 13-1[illegible]980).
INSTITUTION Council for Programs in Technical and Scientific Communication.
PUB DATE Feb 80
NOTE 116p.; For 1974-1984 conference proceedings, see ED 132 630, CS 208 733 and CS 208 735-742.
PUB TYPE Reports - Descriptive (141) -- Collected Works - Conference Proceedings (021) -- Viewpoints (120)

EDRS PRICE MF01/PC05 Plus Postage.
DESCRIPTORS Computers; Education Work Relationship; Graduate Study; Higher Education; *Internship Programs; Program Content; Program Development; *Technical Writing; Two Year Colleges; Undergraduate Study; *Verbal Communication; Writing Improvement
IDENTIFIERS *Writing Programs

ABSTRACT

Articles in these proceedings of a conference of the Council for Programs in Technical and Scientific Communication represent the views of professional communicators and academicians who share a concern for providing breadth and quality of preparation of present and future technical communicators. The 11 papers discuss the following topics: (1) technical communication by nonverbal means, (2) alternative forms in oral technical communication, (3) implications of the computer on technical communication for the publications department manager, (4) technical writing in the community college, (5) guidelines for establishing and supervising student internships in technical communication and mass media, (6) gaining support for a technical communication program at a two-year general purpose university, (7) computer impact on teaching technical communication, (8) technical writing for engineering students at the community college, (9) a proposed two-year technical communication program, (10) problems of developing an undergraduate degree program in technical communication in a general-purpose university, and (11) developing a graduate degree program in technical communication. The minutes of the Council's business meeting, a list of those attending, and a current membership list are also included. (HTH)

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THE COUNCIL FOR PROGRAMS IN TECHNICAL AND SCIENTIFIC COMMUNICATION

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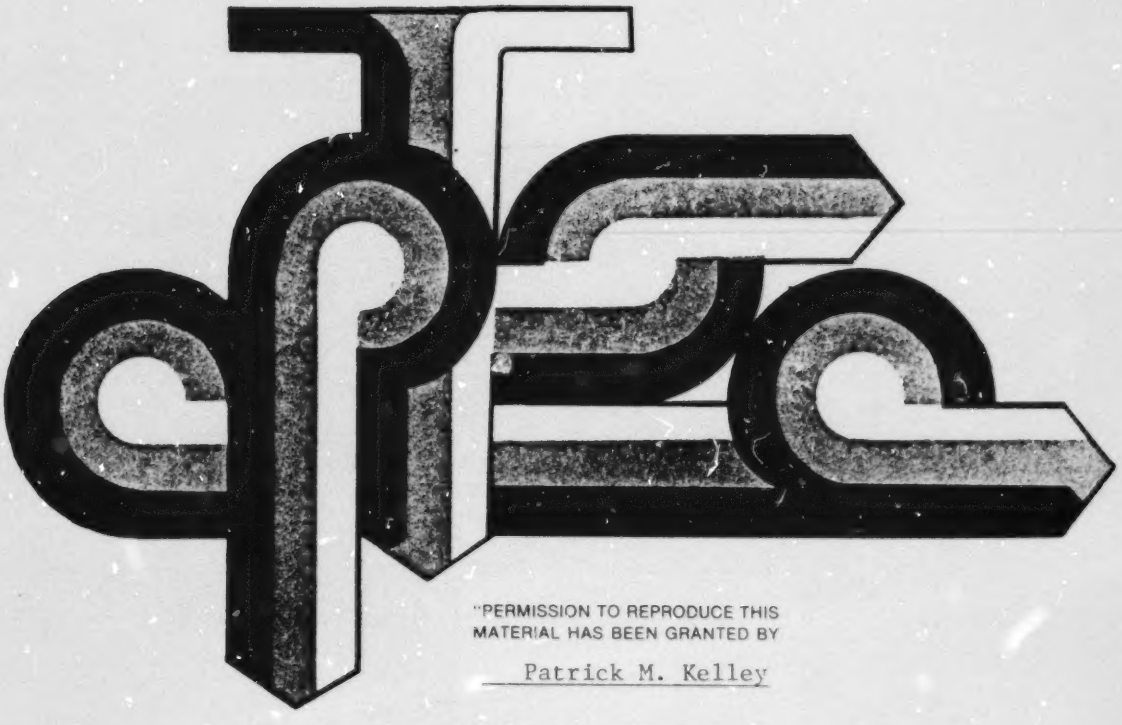
1980



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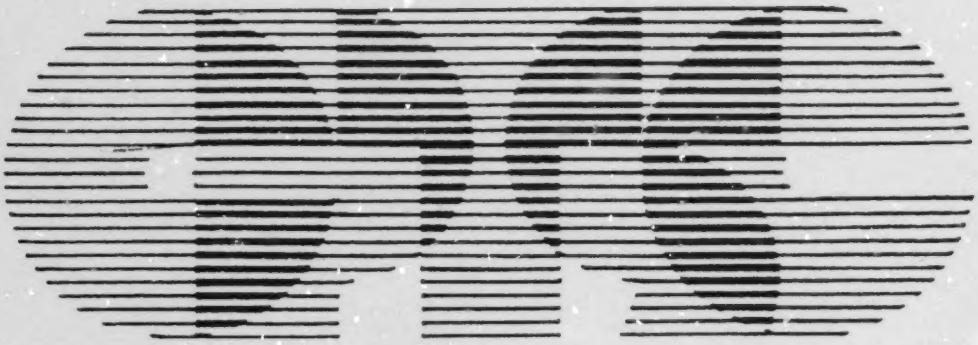

1980 Graphics Design Winners

The designs gracing the cover of this year's proceedings were selected as the winning submissions of the Council's 1980 Competition for Students in Graphic Design. The outside front cover displays the designs selected by the judges as competition co-winners (top) Kathryn R. Markle, student of Dr. Carolyn R. Miller, North Carolina State University, and (center) of Chew-Wah Chung, student of Dr. Thomas E. Pearsall, University of Minnesota. The design on this page, submitted by Elaine M. Lewis and Richard G. VanAlstyne, students of Dr. George A. Barnett, Rensselaer Polytechnic Institute, was awarded third prize.

David L. Carson
President of the Council

PREFACE

On February 13-15, 1980, the seventh annual meeting of the Council for Programs in Technical and Scientific Communication was held in Buena Vista, Florida. The meeting was sponsored by the Department of English, Florida Technological University (Orlando). Nineteen members and twelve guests from seventeen states participated.

It was no surprise to learn that the number of courses and programs in technical communication is proliferating rapidly. The recognition by businesses, industries and government agencies that improved technical communication is desirable and possible, is increasing the demand for professionally educated people in this field. This demand enhances, significantly, two of the primary functions of the Council, to lend guidance and support during the creation and development of technical communication programs.

As has been the practice in the past, representatives from business, industry and government were invited to participate in the meeting. This blend of professional communicators and academicians provides a stimulating forum for an exchange of ideas, philosophies and experiences relevant to creating and developing programs. One of the major points of agreement expressed was a shared concern for providing breadth and quality of preparation for present and future technical communicators.

The papers included in these proceedings reflect the wide variety of topics presented and discussed: problems associated with developing

undergraduate and graduate programs in technical communication, the role of technical communication in two and four year colleges and universities, arranging internships, technical communication by oral and non verbal means, and the relationships between technical communication and the aircraft and computer industries, agriculture, and the popular press. The minutes of the business meeting, a list of those attending, and a current membership list are also included.

During the business meeting, Professor Thomas L. Warren was recognized for his outstanding leadership and service as President to the Council for the past two years. Also, the following officers were elected for 1980:

President	David L. Carson
Vice President	Virginia Book
Secretary	Beekman Cottrell
Treasurer	Carolyn Miller
Member at Large	Myron White

As a final action, the Council formally accepted the invitation of Myron White to hold the 1981 meeting at the University of Washington, Seattle.

Virginia A. Book
Editor/Vice President

TECHNICAL COMMUNICATION BY NON-VERBAL MEANS

J. Paul Hartman, Ph.D., P.E.
Assistant Dean
College of Engineering
University of Central Florida

When Roland sent me a copy of the program for this conference and indicated the nature of the topics being covered, I considered how I might contribute to the agenda. My topic, Technical Communication by Non-Verbal Means, could encompass a variety of things. Since we are currently using computers to design computers and talking from computer to computer perhaps I might discuss that non-verbal communication. Since many are interested in ESP and similar mechanisms of communication, perhaps this could be considered. However, a few months earlier when Roland first contacted me he made reference to my use of slides in the course that I have taught for many years dealing with engineering and technological history. I got the impression that he was interested in my doing something with the many slides I use in that course. I have over 9000, but I don't intend to show them all to you within the next half hour.

The implication from the dictionary definition of the word verbal is that it (1) literally implies the use of words and (2) generally refers to spoken words. I'm not going to propose any startling changes from the use of the English language. In fact, I am in complete sympathy with the Underground Grammarian as to the extreme importance of precise and explicit verbal communication as a part of the education of all people in today's technological age. In fact, a better title for this presentation might be Technical Communication <u>Aided</u> by Non-Verbal Means.

In our Freshman courses, we indicate to the engineering student that the engineer communicates mathematically, graphically, and verbally. We obviously emphasize mathematics first, are doing a questionable job in graphics, and have as difficult a job verbally with current students as you do. You might be interested to know, however, that in the November 1979 issue of Engineering Education, the journal of the American Society for Engineering Education (ASEE), the results of a study to assess the capabilities of graduates from degree granting institutions in the areas of civil, electrical, and mechanical engineering were tabulated. The responses from 460 companies indicated that the most important area of competence they required for engineering graduates was in writing and speaking skills. Following in order thereafter were the various technical specialty areas within those specific disciplines. Some of you may be members of ASEE and are aware that at every annual and regional meeting there is usually at least one session, and often more, dealing with technical communications. In addition, there are often technical communication short courses or seminars as part of most national engineering professional society annual meetings. Thus there is much concern within the engineering profession for the development of technically skilled engineers with a high degree of technical communication competence.

In reviewing several texts that are used at the college level in Technical Communications courses, I was delighted to find that many have sections dealing with communications using, for example, pictures, charts, drawings, etc. The new book by Turner, Technical Report Writing, had an an excellent section on this, even getting into the use of photographs, maps, plans, line graphs, bar graphs, charts, pie charts, etc. In engineering, of course, we feel that such visual graphics are a very important part of technical communication.

It is important that the engineering student (in fact, all students) recognize the various techniques for presenting technical data, and their advantages and disadvantages. Tabular data, often obtained from traditional laboratory procedures, is not usually effectively communicated in a table. Other graphical charts or diagrams can often be more effective. Also, although the student and public today are said to be more visually aware, primarily due to television, this does not necessarily mean a better understanding of visual graphics. In fact, some charts and diagrams that many of us mastered in eighth grade are complete mysteries to a large number of current students as well as the general public. Thus technical communication in these areas goes beyond presenting data -- it often must also involve the explanation of the method of presentation. An interesting comment on the effect of today's technology involves an observation that many of today's students do not know how to read a sweep hand clock, since they have been raised on and perhaps own, several digital clocks -- in their homes, work, and on their wrist. Time is, of course, another example of technical communication.

In a graduate seminar that we started a few years ago in my department we required student participation. The graduate students gave results of their own research and the undergraduates did a small research topic for the purpose of the seminar. We required the student to present the results of their research using an overhead projector or 35 mm slide projector and, in addition, some kind of summary handout, of one or more pages. We were trying to help students think in terms of presenting a research topic orally and visually to their peers. These students were environmental engineers, hence they knew that they would have to be at ease with all facets of technical communication, to a variety of publics. I am not

speaking, however, of the slick presentations by media specialists, which often disguise the nature of the message. The students recognized the importance of understanding completely the technical topic they were presenting before they could even begin to put it in lay terminology. They recognized the importance of effective audiovisual techniques. This was a start, and we have generally had favorable response from our graduates as to the importance of this seminar.

Since my own personal interest is in the area of technical communication of engineering history topics to the general public, may I take the next few minutes and illustrate some of the techniques I have used. Again, I must emphasize that this is technical communication aided by non-verbal means, and not replacing verbal means.

Three of my favorite topics which deal with technical developments and are fun to illustrate visually are the (1) gadgetry and inventions developed within the Hellenistic period, (2) Renaissance machine concepts, and (3) early developments with steam engine technology. Accordingly, the following mini-presentations will cover:

HELLENISTIC CONTRIBUTIONS

1. The Archimedean Screw Pump
2. Heron's Steam Reaction Wheel
3. Coin-operated Holy Water Dispenser
4. Temple Door Opening Mechanism
5. The Force Pump

RENAISSANCE THEATRE OF MACHINES

1. Mine Hoisting Wheel
2. Reading Machine
3. Smoke-Jack Spit
4. Automatic Fan

ALTERNATIVE FORMS IN ORAL TECHNICAL COMMUNICATION

Sam C. Geonetta
University of Missouri at Rolla

Oral technical communication usually focuses on the presentation of ideas and information by a single speaker to an audience. This public speaking emphasis aims to refine the communicator's ability to discover, organize, word, and physically present ideas and information suitable to a specific group.[1] These are necessary skills because they are central to the practice of effective oral communication in a variety of situations.

However, the technical communicator needs to understand practices and variables relevant to other situations demanding different oral communication competencies. Like the public speaker he needs to be prepared for various situations since the effective communicator speaks clearly and accurately in the situations in which he works. Yet by understanding the alternative forms of oral communication he has the additional flexibility required for the relatively free, immediate interplay between participants in interpersonal communication and the adaptibility required for the specialized technical and performance demands of electronic media presentations. This paper defines the elements of interpersonal communication and electronic media presentations with which the technical communicator needs to be familiar and provides a list of sources for further information.

Interpersonal Communication

"Interpersonal communication is direct communication between two or more people in physical proximity in which all of the five senses can be utilized and immediate feedback is present."[2] The maximum number of individuals engaged in interpersonal communication is determined by the limits of the participants' ability to utilize all five senses and to give immediate feedback to others. The dyad is the basic unit of interpersonal communication; two individuals work to share information, present arguments, and/or resolve problems. For example, a single engineer or scientist develops a process or product and attempts to explain procedures or applications to a single technical communicator. An individual may find himself communicating with a number of other individuals on a one-to-one basis in his daily activities.

Groups represent more complex units of interpersonal communication. Task groups attempt to solve a problem or reach a decision through the systematic sharing of ideas and information and the presentation of arguments and evidence. The technical communicator charged with determining the most effective avenues for disseminating information about an activity could call together individuals representing various points of view to share ideas and to hear arguments for and against different methods. Conference groups are primarily information-oriented and their members exchange ideas and information for enlightenment or definition. A symposium at which individual participants present an in-depth report on one aspect of an area of interest is such a group.

A range of oral communication abilities is required in interpersonal situations. Primarily, one needs to understand social-emotional and

task-related communication activities. Social-emotional activities deal with individual relationships as they evolve throughout the group process and include understanding and communicating about feelings, attitudes, and morale. Regulating member participation, giving emotional support, determining individual needs, and managing conflict or anxiety are expressed in social-emotional statements. These are concerns that evolve from the interplay of personalities and that require expression so group members can function most productively in fulfilling the requirements of their task. The effective communicator's statements reflect his ability to manage the personal interaction of participants.

Task-related activities deal with communication that facilitates achievement of the group's goal or resolution of the group's task. Task-related statements contribute or ask for ideas or information, analyze or ask for ideas or information, or clarify concepts and problems with concrete definitions, examples, or explanations. These are concerns that relate to the group's decision-making. The effective communicator's statements reflect his ability to manage information and ideas and arguments and evidence.[3]

Recognizing that communication is interactive, the effective oral communicator not only speaks, but also listens. His own communication behavior will be more accurate and will have greater impact if he formulates statements on an awareness of the communication activity in his environment. Listening is distinguished from hearing -- the physical process of receiving sound -- by the fact that the listener attends to, organizes, and understands what another says before responding.[4]

Electronic Media Presentations

Advances in technology and reductions in price have made electronic media almost as common as training manuals. Ford has a 5000 videotape player network, Chrysler has a 3800 videotape player network, and General Motors is distributing 7000 videodisc players to disseminate product and training information; overall, corporate video alone grew by at least 15% to $575 million in 1978.[5] This does not include audiocassette tapes, sound/slide programs, films, filmstrips, and other forms of non-print media used. Further, corporations are not alone, as educational institutions and individuals have greatly increased the scope of and demand for electronic programming.[6] Much of the information distributed via these media is in the province of the technical communicator, but additional oral communication competencies are required.

The oral communication skills one possesses need to be adapted to the medium in which the technical communicator is working through a greater awareness of the requirements of the medium.

Essentially, the oral communicator needs to be able to perform effectively in the electronic media. He needs to understand basic sound systems and how they function. Of special interest is the varieties of microphones and their optimal uses as well as aural effects one can achieve using mixers and sound effects. One also needs a working knowledge of lighting, makeup, and wardrobe. Further, for visual electronic media the primary adaptation required of the oral communicator is the recognition of the need to make material visually stimulating. A working knowledge of the many devices used to bring video to life needs to be developed and applied, since those devices are necessary for enhancing [illegible]ng the fundamental oral dimension of such presentations.

Understanding how and why to use the range of effects available through a special effects generator, knowing the different features of the character generator, being able to program visuals for a multiplexer, and effectively using the electronic editor are all abilities closely allied to oral communication with which the individual need be familiar. These abilities can save time, energy, and money in presenting materials because one knows what can and cannot be done. Finally, an understanding of settings for electronic media is also important. The controlled atmosphere of the studio has different capabilities and requirements than the relatively diverse and uncontrolled field setting such as a laboratory or production line.

By understanding and learning to function within the requirements of the electronic media, one can be a more effective, confident oral communicator. The basic principle is common to any oral presentation: familiarity with the situation and its demands makes a stronger oral communication.[7]

Conclusion

Fundamental public speaking skills provide a necessary basis from which the oral technical communicator can work. Still, he spends a good deal of his time meeting the demands of oral communication situations that fall outside the realm of public speaking. To be most effective and efficient, he needs to grasp the special requirements of these situations.

NOTES

1. Examples of this type of orientation are: Joan F. Dornbusch, "Right Speaking from Writing: Turning a Technical Report into an Effective Oral Presentation," in Proceedings: 26th International Technical Communication Conference (Los Angeles: The Society for Technical Communication, 1979), pp. E34-39; David E. Fear, "Individual Oral Presentations," Technical Communication (Glenview, Ill.: Scott, Foresman and Co., 1977), pp. 231-251; Nell Ann Picket and Ann A Laster, "Oral Communication: Saying It Clearly," Technical English 2nd ed. (San Francisco: Canfield Press, 1975), pp. 403-414; Roger P. Wilcox, "Characteristics and Organization of the Oral Technical Report," General Motors Engineering Journal, 6 (November-December 1959), pp. 8-12; and, for a comprehensive list of sources, Arthur E. Workun, "Speech for the Technician: A Bibliography," Journal of Technical Writing and Communication, 4 (Fall 1974), pp. 331-339.

2. For this definition and an explanation of its components see Reed Blake and Edwin O. Haroldsen, A Taxonomy of Concepts in Communication (New York: Hastings House, 1975), pp. 26-27.

3. Dennis S. Gouran, "An Investigation to Identify the Critical Variables Related to Consensus in Group Discussions of Questions of Policy," Final Report to the Office of Education, United States Department of Health, Education, and Welfare, January 1, 1969 provides an excellent review of communication statements that relate to the effective functioning of individuals in groups. For depth of information refer to the Resources cited under Group Communication after these Notes.

4. Sam Duker, Listening: Readings, Vols. I and II (Metuchen, W. J.: Scarecrow Press, 1966 and 1971). For depth of information refer to the Resources cited under Interpersonal Communication after these Notes.

5. "Chrysler Launches Video Marketing Communications with 3800 Betamaxes and Plans for Extensive Programming," VU Marketplace, 2 (November 13, 1978), p. 1; "Corporate Video '78," VU Marketplace, 2 (December 25, 1978), p. 1; "GM Orders 7000 Video Disc Players," VU Marketplace, 2 (March 5, 1979), p. 1. An idea of the extent of electronic media usage can be determined by an examination of the range and types of businesses in the "Directory of Industrial Television Association Members," Educational and Industrial Television, 10 (August 1978), pp. 40-42.

6. A sample of the applications in these areas is duscussed in John A. Bunyan, James C. Crimmins, and M. Kyri Watson, Practical Video (White Plains, N.Y.: Knowledge Industry Publications, 1978). The following articles from Educational and Industrial Television demonstrate further specific applications of electronic media in a variety of situations: Don Agostino, Gary Kahn, and Barry Cohen, "Video to Teach Interpersonal Skills in Health Care," 10 (December 1978), pp. 50-55; Mark Heyer, "The Video Consumer: Interactive TV in the Home," 11 (April 1979), pp. 56-60; Lawrence Holman, "Using EFP to Make an Instructional Series," 10 (December 1978), pp. 29-32; "Interact -- a Microwave Medical Network," 11 (April 1979), pp. 62-66; Leo Leveridge, "The Potential of Interactive Optical Videodisc Systems for Continuing Education," 11 (April 1979), pp. 35-38; Jay Sedlik, "Teachers Plus Texts Plus Interactive Television Equals Training," 11 (April 1979), pp. 68-76; and Dennis Szilak, "Interactive Tape Cassettes for Industiral Training," 11 (April 1979), pp. 43-44.

7. Refer to the Resources cited under Media after these Notes

RESOURCES

(This list represents a sample of available resources. In most cases more comprehensive bibliographies are available in the sources cited below. I have selected these items because I have used information and exercises in them and found them to be quite clear and useful.)

Group Communication

Book, Cassandra and Kathleen Galvin. Instruction In and About Small Group Discussion. Falls Church, Va.: The Speech Communication Association, 1975.

Bormann, Ernest G. Discussion and Group Methods. Second edition. New York: Harper and Row, 1975.

Hasling, John. Group Discussion and Decision Making. New York: Thomas Y. Crowell, 1975.

Janis, Irving L. Victims of Groupthink. Boston: Houghton Mifflin, 1972.

While somewhat theoretical, this book makes some striking points about problems in decision making groups.

Patton, Bobby R. and Kim Giffin. Problem-Solving Group Interaction. New York: Harper and Row, 1975.

Potter, David and Martin P. Andersen. Discussion in Small Groups: A Guide to Effective Practice. Third edition. Belmont, Ca.: Wadsworth, 1976.

This is a very good practical guide. It has a large number of exercises and aids to group communication.

Scheidel, Thomas M. and Laura Crowell. Discussing and Deciding. New York: Macmillan, 1979.

Essentially, this book is a handbook that takes the reader through group activities in an orderly, understandable manner.

Stech, Ernest and Sharon A. Ratliffe. Working in Groups. Skokie, Ill.: National Textbook Company, 1976.

Interpersonal Communication

Baird, John E. The Dynamics of Organizational Communication. New York: Harper and Row, 1977.

Barbour, Alton and Alvin A. Goldberg. Interpersonal Communication: Teaching Strategies and Resources. Falls Church, Va.: The Speech Communication Association, 1974.

Brooks, William and Philip Emmert. Interpersonal Communication. Dubuque, Ia.: William C. Brown, 1976.

Patton, Bobby R. and Kim Griffin. Interpersonal Communication in Action. Second edition. New York: Harper and Row, 1977.

Wenburg, John and William Wilmot. The Personal Communication Process. New York: John Wiley and Sons, 1973.

Media

Bensinger, Charles. The Video Guide. Santa Barbara, Ca.: Video Info Publications, 1977.

A very good guide to the basics of video and video systems. It is clearly written and well-illustrated.

Biedenbach, Joseph M. "Continuing Education by Video Tape." Journal of Technical Writing and Communication, 3 (Summer 1973), 223-235.

Bunyan, John A., James C. Crimmins, and N. Kyri Watson. Practical Video. White Plains, N.Y.: Knowledge Industry Publications, 1978.

A number of educational and industrial programs are profiled in this book. It is very useful.

_____ and James C. Crimmins. Television and Management. White Plains, N.Y.: Knowledge Industry Publications, 1977.

Gershon, Robert. "Four Ways to do Narrations in Documentary Style Programs." Educational and Industrial Television, 10 (October 1978), 35-58.

An article that shows one of the many areas of oral communication and its requirements when one is dealing with electronic media.

Hawes, William. The Performer in Mass Media. New York: Hastings House, 1978.

This comprehensive text examines all facets of performance for the media. It is just one (albeit an extremely useful one) of the fine communication books produced by Hastings House.

King, James. "How to Use, Not Abuse, Microphone Placement." Educational and Industrial Television, 10 (February 1978), 28-29.

Marsh, Ken. Independent Video. San Francisco: Straight Arrow Books, 1974.

An interesting introduction to the technical side of video. Cuts through some heavy technical material with clear writing and good illustrations.

Martin-Vegue, Charles A., Albert J. Morris, and Gena E. Tallmadge. "University Instructional Television Networks." Journal of Technical Writing and Communication, 4 (Winter 1974), 47-67.

Quick, John and Herbert Wolfe. Small-Studio Video Tape Production. Second edition. Reading, Mass.: Addison-Wesley, 1976.

A very good, clearly written introduction to some of the problems and the basic principles of video production.

Weiner, Peter. Making the Media Revolution. New York: Macmillan, 1975.

Some of the material is dated, but it has some interesting, clearly stated ideas.

IMPACTS OF THE COMPUTER ON TECHNICAL COMMUNICATION: PUBLICATIONS DEPARTMENT MANAGER

Robert D. Beckhorn

Summary

The skills that are required to manage a publication department are rapidly changing. The impact of the computer on methods and economics of a publications department are such that we must broaden our skills or fall behind in this computer age.

The Past

In the not too distant past, the publications department manager's responsibility was to handle people problems, see that schedules were met, that standards were maintained, and deal with printing and graphic arts vendors. The most complicated piece of equipment we had to consider was a typewriter or a manual typesetting machine, costing from a few hundred to a few thousand dollars. The publications department was considered a people department with very little equipment or overhead cost. Yearly budgets were submitted based on the number of projects and types of documents to be supported. We had our own little world, documenting how computers worked and were maintained, but very seldom utilizing their capabilities to produce documentation.

Present

We still have the same kinds of people, scheduie standards and vendors to deal with, but in addition the computer has now become a tool that, if properly utilized, can be a tremendous asset. However, if these new com-

puterized tools do not meet the specific needs of your operation, they can become a very expensive misfit that will not produce.

This ability to select the proper kinds of computerized equipment is where new skills, or at least the sharpening of old ones, comes into play. The following are some areas where the publications department manager must become proficient in order to take full advantage of the computer.

Long Range Planning

The manager must know what his department will be doing five to seven years in the future.

Department Structure

How will computerized equipment affect the structure of the department? For example, if a large text editor system is being considered, will each writer/editor have a CRT, or will there be a central area? Will a word processing system require revamping of the composition group?

People and Training

This is a very important area especially in light of the recent EEO legislation. Are your people trainable? How will they be trained and by whom? How much will it cost and how will it affect your output? I know that this is normally a function of the personnel or human resources department, however, the manager must tell them what is required.

Economic Justification

This is an area where the department manager must become an accountant and salesperson. You must be able to show the finance department that this very expensive equipment is going to save the company money. Normally, they expect it to pay for itself, from savings, within a two year period of time.

Equipment Analysis

Once the computer industry finds out you are looking, you will have lots of opportunity to see what is available. This is another area that I found needed skills sharpened. Most of these sales people do not understand publications. They want to sell a piece of equipment and normally are not really interested in your problems.

How to Sharpen Skills

- Read -- as much as possible on related subjects.
- Talk to other publications department managers -- within your company and outside, profit from their experience, both good and bad.
- Take a refresher course in accounting, either at a college or review your library books.
- Utilize all possible expertise within your company.

TECHNICAL WRITING IN THE COMMUNITY COLLEGE

Elizabeth R. Turpin
Humanities Department
Houston Community College

1. Need for Coordination Between Parallel and Vocational Teaching of Technical and Business Writing

2. Challenges in Student Levels of Preparation For And Experience in Writing

3. Methods of Developing Central Core Skills in the Community College Technical Writing Courses

4. Grant Proposals for Curriculum Development and Learning Resource Support for Technical Writing Courses in Both Vocational and Parallel Track Offerings

   a. Modules for Support Development of Basic Skills (for Student Use)

   b. Modules for Reinforcement and Enrichment of Communication Concept Teaching (for Teacher Use)

   c. Modules for Support and Enrichment of Rhetorical Skills and Analysis (for Student Use)

GUIDELINES FOR ESTABLISHING AND SUPERVISING STUDENT INTERNSHIPS IN TECHNICAL COMMUNICATION AND MASS MEDIA

Dr. Elizabeth R. Turpin
Division of Humanities
Houston Community College

Offered: On request

Texts: Assigned, as appropriate to individual internship scope

Purpose of Internships:

To provide the students with direct career contact in an actual working situation and to prepare students to become responsible professionals in media and technical communication fields. To learn to set learning goals, participate in the responsibility for the learning experience, and reevaluate goals against the learning experience at the end of each internship unit. To acquire on-the-job skills reinforcing academic and theoretical training for communicating in a variety of media and technical communication positions in direct and related fields.

Important Aspects and Requirements of Internships:

1. Each student is required to spend the equivalent of at least 15 hours per week for a minimum of eight weeks to receive credit for 3 semester hours. Students are encouraged to secure the required hours of internship credit within a continuous period of contact and over a long enough period of time for the contact to yield time for maturity.

2. Each student is supervised by a member of the faculty of the Humanities Division who is teaching a course in which the student is enrolled. In addition, each student works with the faculty supervisor individually on a regular conference basis to set and review goals and aims to be met during the internship experience. The student records the goals and aims and experience, and re-evaluates these at the end of the internship period.

3. The internship is evaluated in terms of the organization the student works for, type of position, amount of responsibility, progress, and variety of exposure to live working pressures.

4. Each student keeps a daily journal to record type of experience and daily amounts of time for each type of skill being acquired, samples of work (where appropriate), and responses to activity.

5. At the end of the internship period, each student writes a final evaluative paper, reporting original goals, summary of experience by each significant activity (with tallies of time spent for each), reevaluation of original goals, together with a conclusion drawn as to the value of the internship for the individual and as a possibility for future internships by others.

6. A major goal is for each student to gain a feeling of immediacy from the time constraints and quality of performance demanded by an actual media setting. Therefore, it is important for each student to be placed in an internship setting which most nearly equates his/her career interests. This produces maximum interest, application, and cooperation with internship goals. Each student understands that he/she is responsible for carrying out whatever activities assigned by the internship sponsor. It is the student's responsibility to fit/adjust to the time/effort demands of the sponsor insofar as possible within the class/activity schedule registered for at the College.

7. The student should be counseled that it is his/her responsibility to help make the experience meaningful rather than expecting either the sponsor or the faculty/College to carry the effort entirely.

8. With approval, the student may secure his/her own internship contact, provided the internship meets all the requirements and that the student establishes and fulfills all the prior goals and evaluation procedures. Except in unusual circumstances, prior experience may not be counted for internship credit.

9. With the variety of experience possible in internships, the supervisor and the College will try to be flexible in determining appropriate internships so that the students will have the maximum opportunity for learning experiences.

10. Sponsoring organizations are contacted, a copy of the requirements sheet provided, and responsibilities outlined. It is made clear to the sponsor that the responsibility for the internship's learning quality and results lies with the student and the College's supervisor. The sponsor is responsible for making the experience available, and should reasonably be able to expect cooperation and maximum effort for the 120 required hours in return for the student to have the opportunity to gain field experience. Students should keep in mind that having interns aboard takes time for the sponsor.

11. Students should be continuously advised through conferences with the faculty sponsor. The faculty sponsor/supervisor should use these conferences to help the student gain valuable insights into professional areas and attitudes.

12. Each student should prepare a resume to be submitted to prospective internship sponsors. Supervisors should fill out the internship record sheet for each intern during each period of internship activity, and these should be kept on file.

13. At the end of the internship, the supervisor will rate the student, including a conference evaluation from the sponsor, and give the student a grade for the internship and credit hours where appropriate. This information should be recorded on the internship file sheet, and a copy of the record sheet and the student's final report placed on file in the Division Office of the College.

GAINING SUPPORT FOR A TECHNICAL COMMUNICATION PROGRAM AT A TWO-YEAR GENERAL PURPOSE UNIVERSITY

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Introduction

I am now engaged in starting a technical communication program at a two-year branch campus of a general purpose university. Since I have been involved both with the program and with the campus for less than one academic year, I can present no conclusions about the success of the program. I can, however, relate several of the initial problems I am encountering and reveal some approaches to solving the problems. The purpose of this paper is to share that information with you; perhaps some of it will aid you in your attempts to start programs.

Description of the University

Miami University-Middletown is a two-year branch of Miami University, Oxford, Ohio. As a branch campus it is dedicated to the same ideals of the main campus: "To preserve, add to, evaluate, and transmit the accumulated knowledge of the centuries; to develop critical thinking, extend the frontiers of knowledge, and serve society; to provide an environment conducive to effective and inspired teaching and learning, promote professional development of faculty, and encourage scholarly research and creativity of faculty and students."[1] As a two-year school dependent upon

the support of the local community for its existence it translates the ideals of the university into two primary missions: 1) To provide the first two years of work leading toward the baccalaureate degree. 2) To provide selected university-level associate degree or certificate programs, which are designed to fulfill society's needs.[2]

Attacking the Problem

Regardless of the texture of the university, there appear to be four areas of support needed to initiate a program: administrative; faculty; community -- local business, industry and government; and student. If there are differences between the general-purpose university and others in trying to get support for new programs from these four sources, the difference is probably one of degree rather than of kind; resistance to technically oriented programs is intensified on general-purpose campuses. And, if there is a difference between Miami University-Middletown and other branch or two-year campuses, it is probably that the main campus of Miami University already has a technical writing emphasis program within the English major. The problem created by the emphasis program is that those who enter a two-year program at the branch campus must be identified by whether they are seeking a terminal two-year degree or whether they are planning to continue in a four-year program at the main campus.

Recognizing the problem which confronted me in trying to start a technical communication program, I began with research into programs which apparently had succeeded and searched for papers about starting programs. Therefore, many of you, as this paper progresses, will be

recognizing suggestions you have made in the past about starting and promoting technical communication programs. For example, Thomas Warren, in a paper he read at CCCC in 1978, gave two bits of advice for one starting a two-year program: Seek help by going to meetings such as this one, and find out the needs of local industry and of the students.[3] Paul Anderson, in a paper read to this Council describing the emphasis program at Miami University-Oxford, said, "Before they approve such programs, English departments want to be assured of three things: that the programs are sound, that they will attract students, and that they will not alter the nature of the departments in an undesirable way."[4] Last year at the Council meeting, Martha Eckman, although discussing programs already established, repeated several times that support for technical writing programs is much faster coming if the technical writing instructor gets out of his office and gets to know the faculty members outside the English Department. Part of this she called "cultivating your own garden," that is, giving writing assignments involving other departments on the campus.[5] A synthesis of this information about programs emphasizes my earlier statement about four specific groups which need to be convinced of the desirability of a technical communication program before it can be established: administration, faculty, community and students.

Getting Administrative Support

Gaining support from administration to begin preliminary contacts with people in business and industry with whom administrators are familiar, and obtaining the funds necessary to make the telephone calls and the trips to talk with the people, requires providing some support for the validity

of a potential technical communication program. Obviously, there is a problem since financial and "moral" support for research into the program is necessary before much adequate statistical support for doing the research can be produced. The Directory of Colleges and Universities granting degrees in technical communication helps to show some of the structures of other programs.[6] However, the few two-year programs included do not help to show the feasibility of such programs. The latest information I had, which said that only about half a dozen two-year schools in the country have two-year programs, also did not enhance my support for starting a program.

However, it did help to refer to the 1977 survey of technical communicators which revealed that 214 (24.3%) of the 879 people who responded to the survey believed that a person with an associate degree in technical communication could handle the job of technical communicator. Support for doing the research into the feasibility of such a program was enhanced because both those actually involved in technical communications work and those who educate the technical communicators appear to agree about the value of an associate degree in training technical communicators (See Table IIIb).

These figures helped to impress upon the administration of our branch campus that research into starting a technical communication program on the two-year level would be worth pursuing, especially following the notice that the main campus had a four-year emphasis program in technical communication. Because the four-year program already exists, students who decide to pursue technical communication beyond the two-year degree

could transfer to the main campus and continue their studies. However, support from the community, the faculty and the students still had to be obtained.

Gaining Support from Business, Industry and Faculty

Again taking the advice of those who had developed programs before, I set a course for getting the attention of business and industry and their support for the program. First, I began to make phone calls to the larger industries in my city and surrounding cities. The responses I received from them were not negative, yet were noncommital. The associate degree in technical communication did not, I gathered, seem to them to give the student enough academic experience. Beyond this problem, however, I also discovered that the days would not stretch long enough for me to see all the people I needed to talk to. So, although not abandoning this course of action, I started a different approach, one which would also get the support of the faculty. I began to talk to department chairmen on campus about the potential program and discovered that one of the problems members of the advisory committees for the associate degree programs kept referring to was the lack of communication skills among the graduates of the associate degree programs. I offered to speak to the meetings of these advisory groups and have received favorable response from most of them.

In addition, I'm offering short courses through Continuing Education on various single elements involved in technical writing, i.e., proposal and report writing. Through Continuing Education and through the acquaintances I have made through advisory committees and through direct contacts,

I am offering to give in-house programs in local business and industry. And, to show the technical faculty the fruits of a good technical communication program, I am seeking their advice about the kinds of writing assignments they believe would help their students. Through the contacts directly with business and industry and through their representatives and the technical faculty on campus, I believe I will gather support for technical writing courses. Yet, there is a significant difference between gaining support for courses and gaining support for programs, as you well know. Program support must come through demand from potential graduates of that program, the students.

Gaining Support from Students

During this time of declining student enrollments, universities are obviously looking for programs which will attract and retain students. To see if technical communication has that potential at our campus I have so far explored two avenues. First, I surveyed the students in English classes this spring to see what their interests were in the courses offered through the English Department. The survey had three questions, could be given during class without taking more than 3 or 4 minutes of class time and was devised so that it would reveal information helpful to all English teachers and to the coordinator who was planning course offerings for the 1980-1981 academic year (see attached "English Survey.") I gave the surveys to English classes only; they were passed out and taken up during class by the individual instructors. This method of administering the survey gave, I believe, accurate information because each of the six

teachers who gave the survey has a separate special interest, so any attempt by one to create interest in his own courses was offset by the other five doing exactly the same thing. In addition, to insure that there would be no repetition of responses, each instructor was asked to tell the students to fill out only one questionnaire regardless of how many the student may have received by being in more than one English class.

There were 179 responses to the survey. Of those, 50 (28%) said they did not intend to take any more English classes on this campus. One hundred eleven students (62%) said they would take other English classes on the campus. On the survey the students were provided with the course numbers and names of 16 English classes already offered on the campus, plus an advanced technical writing class which had never been offered locally (see "English Survey). The results were that 40 students (36%) said that they would take the beginning technical writing class; 41 (37%) said they would take Business Writing, and 24 (22%) expressed an interest in the advanced technical writing course. These three courses constitute three of the four core courses in the technical writing emphasis program as it is established on the main campus. (The fourth core course, News Writing and Reporting, is not offered on the Middletown campus.) In addition, Structure of Modern English received 14 student responses (13%) and Advanced Composition received 20 (18%). These two courses are generally recommended courses for the technical communication major.

Based upon the results of this survey alone, there has been a decision to offer the beginning technical writing course, which has until now been offered only in the Spring semester each year, every semester of the 1980-1981 academic year. And, Advanced Technical Writing, which has never been offered on the campus, will be offered either in the Spring or Summer

of 1981. These may appear as little concessions in establishing an associate degree program, but I look at them as major advances. Additionally, from discussions with people at other colleges and universities who are trying to establish technical communication programs, I gather that the administration is generally not impressed with numbers. The success of the simple survey I gave, I believe, shows that the administration is changing, as it must in this period which threatens a decline in enrollments, its attitude toward numbers.

The survey, however, tapped only those students currently enrolled and, as we know, the vagaries of life frequently change people's attitudes. Thus arises the problem of advertising the courses to the students who will be entering the university in the coming years. Ultimately, word of mouth from satisfied students will be the best method of perpetuating a technical writing program by attracting new students to the program.

Conclusion

The difficulties in starting a technical communication program at a general purpose university, at least on the two-year level, and at other types of schools are not different in kind so much as they are in degree. Perhaps the resistance is more intense at a general purpose university. To overcome the resistance, I am not pursuing the approach of formally starting a technical communication program, then trying to get support for it. Instead, I will continue to try to gain support for technical writing classes and other classes which are needed in a technical communication major and gather potential technical communication majors. As enough student interest is generated to fill a new course, I will offer it

and try to make it successful enough that demand will cause it to be offered repeatedly. I shall also continue to try to "cultivate the faculty garden" in technical areas and continue to offer outreach programs to local businesses. Following these procedures I hope to grow into a program which, when it is time to formalize, will require reference to past achievements rather than anticipated achievements for support.

NOTES

1. Maimi University Catalogue (1979-80), p. 1. Cf. The Miami University Self-Study Report for Accreditation Review (November, 1974).

2. Bulletin 1979-80, Miami University-Middletown, p. 7.

3. Thomas L. Warren, "A Technical Writing Program for a Two-Year School," CCCC, Denver, March 1978.

4. Paul V. Anderson, "The Undergraduate English Major with an Emphasis in Technical Writing," CPTSC, Troy, New York, April 1978.

5. Martha Eckman, "Publicizing Your Technical Writing Program, On- and Off-Campus," CPTSC, Stillwater, April 1979.

6. Compiled at the request of the Council for Programs in Technical and Scientific Communication, March 1978.

TABLE IIIb: PREPARATION -- MINIMUM EDUCATION

QUESTION 8: What general level of education, regardless of the specific course area, do you believe is the minimum required for an entry-level technical communicator?

TOTAL RESPONSES

Degree	Number	Percent
High School	74	8.4
Technical/ Trade School	119	13.5
Business School	4	0.5
Associate's	214	24.3
Bachelor's	430	48.9
Master's	14	1.6
Doctorate	2	0.2
Others	22	2.5

MOST FREQUENT RESPONSES BY JOB FUNCTION

Degree	Job Function (Number Responding)			
	Managers (257)	Writers (255)	Editors (179)	Educators (76)
High School	10.9%	7.5%	8.5%	1.3%
Technical/Trade School	15.2%	17.6%	7.3%	5.3%
Associate's	22.6%	31.4%	15.8%	25.0%
Bachelor's	47.9%	39.2%	63.8%	64.5%
Master's	0.8%	1.6%	1.7%	2.6%
Doctorate	0.0%	0.0%	0.0%	0.0%

ENGLISH SURVEY

		Yes	No	Total Responses
1.	Are you planning to be an English major?	18		
2.	Do you poan to take other English courses on the MUM campus during the next two years?	111 (62%)	50 (28%)	179

3. If the following courses were offered during the next two years, which one(s) would you probably take?

	____	Eng. 131-32	Life & Thought in English Literature
	____	Eng. 141-42	Life & Thought in American Literature
	____	Eng. 210	Studies in Popular Literature
(36%)	40	Eng. 215	Technical Writing
(18%)	20	Eng. 225	Advanced Composition
	____	Eng. 226	Creative Writing: Short Story & Poetry
	____	Eng. 251-52	Life & Thought in European Literature
	____	Eng. 257	Modern Continental Drama
	____	Eng. 258	The Modern World Novel
	____	Eng. 262	Children's Literature
	____	Eng. 293	The American Novel of the 1960's
(13%)	14	Eng. 302	Structure of Modern English
(37%)	41	Eng. 315	Exposition for Business and Professional Students
	____	Eng. 333	Women in British & American Literature
	____	Eng. 357	Radio & Television Writing
	____	Eng. 373	Shakespeare's Plays
(22%)	24	Eng. 415	Advanced Technical Writing

4. Other English & American Literature courses on the 300 or 400 level?

_____

_____

COMPUTER IMPACT ON TEACHING TECHNICAL COMMUNICATION

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Perhaps one of the dominant features of our technocrat society is the omnipresence of the computer. Not only does it underlie most of our scientific, technological, and business activities but it reaches into virtually every facet of our lives. The cost of computing equipment has made such tools available to every school, business, and household. We teach our kids on them, play games, keep records, do business, and a variety of other tasks. In terms of technical writing programs, the effect is enormous. During the past year, three-fourths of employee requests from industry have been for documentation writers. About half of the other requests were for someone with knowledge of either the computer or word processing equipment. In addition to direct knowledge of the computer, technical writing programs could benefit from such peripheral computing concerns as computer assisted instruction (CAI), readability programs, and language analysis as learning tools.

Computer Assisted Instruction

While most CAI programs use traditional drill and practice techniques, they can still offer distinct advantages for the technical writing classroom. For example, within CAI programs it is possible to treat remedial students with branching commands that allow remediation without the onus of stupidity placed on the student. It is also possible to develop bookkeeping routines to accumulate data on student writing perceptions and

and problems. One such approach is to write materials that include a variety of sentence types as well as passages that may be calibrated for ideal information gain.[1] Prose material could also be developed to test the effects of ambiguity,[2] reader expectation,[3] word frequency effect,[4] and reader reaction to irrelevant information.[5] The main advantage of this approach to CAI is that the program fulfills its basic mission -- teaching language skills -- and allows the programmer/writer/reasearcher to acquire data concerning student language perceptions.

Another possibility for CAI in technical communication programs is to use it to teach other communication skills -- formating, print technology, publications management, video, radio, film, etc. All of these pursuits admit of some CAI development. One such system that is in current use at Michigan Technological University offers students the opportunity to do "blocking" exercises on a CRT (cathode ray tube) for television classes without requiring studio time. Many of the bugs in the shooting sequence are resolved without a large investment in time, equipment, and personnel. Another program allows the student to format texts in a variety of ways so that "clients" from other departments can see a dummy before any type is set. This latter program has even been modified to allow the instructor to test specific skills in publication management. These programs represent a distinct change from our previous efforts in that we have implemented these systems on a TERAK, a micro computer rather than the larger UNIVAC 1110.

Readability Formuli

One aspect of writing that students exhibit a great deal of apathy about is the role of the reader. What does one get out of a text? Does

the reader read the same thing the writer wrote? Is the reader's purpose in reading a piece of writing efferential?[6] If so, what is he/she after? Anyone who is familiar with readability formuli or who uses them will readily admit that they are at best crutches. But they can be useful in focusing a student's attention on the impact and importance of specific word choices and sentence structures for reader understanding.[7] If you have such a program available on your computer, you can require them to turn in their assignments along with various diagnostic material generated by the program. For the teacher this has two advantages. First, it means that the student has filtered his/her work through the typing process and (hopefully) has used this time for editing. Second, you receive a neat typescript with diagnostic information in a single package. Currently, our technical writing, publication management, advanced composition, and several other classes use our readability system as part of their basic instruction. This system is a revision of STARFORT which was developed at General Motors. An abbreviated example of its output looks something like this:

```
>@PMR$TEXT.  READ
Do you want the text input printed?
>Y
Do you want 'high density' words printed?
>Y
@ADD.E TEXT ELEMENT or @EOF
>@ADD.E R.
```

PERHAPS ONE OF THE DOMINANT FEATURES OF OUR TECHNOCRATIC SOCIETY IS THE PRESCENCE OF THE COMPUTER. NOT ONLY DOES IT UNDERLIE MOST OF OUR SCIENTIFIC, TECHNOLOGICAL, AND BUSINESS ACTIVITIES BUT REACHES INTO VIRTUALLY EVERY FACET OF OUR LIVES. THE COST OF COMPUTING EQUIPMENT HAS MADE SUCH TOOLS AVAILABLE TO EVERY SCHOOL, BUSINESS, AND HOUSEHOLD. WE TEACH OUR CHILDREN ON THEM, PLAY GAMES, KEEP RECORDS, DO BUSINESS, AND A VARIETY OF OTHER TASKS. IN TERMS OF TECHNICAL WRITING PROGRAMS, THE EFFECT IS ENORMOUS. DURING THE PAST YEAR, THREE-FOURTHS OF EMPLOYEE REQUESTS FROM INDUSTRY HAVE BEEN FOR DOCUMENTATION WRITERS. ABOUT HALF OF THE OTHER REQUESTS WERE FOR SOMEONE WITH KNOWLEDGE OF EITHER THE COMPUTER OR WORD PROCESSING EQUIPMENT. IN ADDITION, TO DIRECT KNOWLEDGE OF THE COMPUTER, TECHNICAL WRITING PROGRAMS COULD BENEFIT FROM SUCH PERIPHERAL INTERESTS AS COMPUTER AIDED INSTRUCTION (CAI), READABILITY PROGRAMS, AND LANGUAGE ANALYSIS AS LEARNING TOOLS.

High density words

3 DOMINANT	4 TECHNOCRATIC
3 COMPUTER	3 UNDERLIE
3 SCIENTIFIC	5 TECHNOLOGICAL
3 BUSINESS	4 ACTIVITIES
3 VIRTUALLY	3 COMPUTING
3 EQUIPMENT	4 AVAILABLE
3 BUSINESS	3 HOUSEHOLD
3 BUSINESS	3 TECHNICAL
3 ENORMOUS	5 DOCUMENTATION
3 COMPUTER	3 PROCESSING
3 EQUIPMENT	3 ADDITION
3 COMPUTER	3 TECHNICAL
3 BENEFIT	4 PERIPHERAL
3 INTERESTS	3 COMPUTER
3 INSTRUCTION	4 READABILITY
4 ANALYSIS	

```
        Number of sentences =    8.
    Minimum sentence length =    9.
    Maximum sentence length =   26.
    Ave. words per sentence =   18.4
Std. dev. of sentence length =    5.07
      Total number of words =  147.
          Ave. word length =    5.4
Number of high density words =   31.
    High density/Total words =     .21
       Number of syllables =  254.
    Ave. syllables per word =    1.7
               Flesch index =   42.0
                 Dale index =    9.3
     Grade level equivalent =   14.2

Flesch index ranges from 0-100 with 100 as most readable.
Dale index ranges from 0-10 with 0 as most readable.



@ADD,E TEXT ELEMENT or @EOF

>@EOF
>@@SKIP 10
>@FIN
*TERMINAL INACTIVE*
>@@TERM
** GOOD DAY **
```

Admittedly this is a crutch. However, plans for future revisions include a storage system that records each change in the writing stage as well as a listing of cliches and their cognates to add another dimension to the programs usefulness.

Text Processing

It would indeed be wonderful if every university could afford a word processing machine for instructional purposes. However, that simply is not the case. When Michigan Tech decided that it was not "cost-effective" to buy such a machine for one or two quarters worth of instruction per year, we tried several other avenues. First, we tried shared-time on a machine

in our Communication Services Department (CSD). That did not work because CSD is a production facility with a very tight schedule. A similar alliance in the community did not work either. With this in mind we developed a simulation program on the UNIVAC 1110 using FORTRAN for our text processing activities. This program does everything that a commercial text processing machine does, except give camera-ready copy. We expect to remedy this situation with the addition of a better printer. Such an activity generally confined to majors in print labs, publication management, and senior project classes -- gives the student an acquaintance with the possibilities, limitations, and frustrations of computer text processing.

Language Analysis

The one facet of a university education that one must never lose sight of is that we are preparing students to think, not to imitate monkey actions. The computer can be a primary vehicle for achieving such an end; it can be especially useful for students who are going to pursue careers that involved language. There is an endless variety of ways in which you can use the computer for such purposes. For example, students can engage in projects that involve analysis of both reading and writing problems. Some of the CAI programs mentioned earlier in this paper were student originated. The biggest single advantage of such activities is that they require the student to learn grammar, sentence structure, paragraph development, good writing habits, as well as programming languages. Such research sharpens their perceptions of writing demands and readers needs. Beyond that they become challenging exercises for faculty development and inroads into the frontiers of communication theory.

Problems and Triumphs

Three problems stand in the way of using the computer to its best advantage in technical communication programs. First, words and their manipulation take a lot of space and time within the computing system. Some micro systems are even too small to be useful for such projects. In addition, if students access the computer through CRT's they must have that access for longer periods of time than students who are simply "debugging" a mathematical program. Finally, most students who are into writing have as much trouble seeing the usefulness of the computer as the computer scientist has with writing courses. They look upon the machine with all of the misgivings common to our society. It will somehow control our lives and can't be trusted. There is a secret society peopled by initiates who speak some strange language which they will never be part of. Each encounter with the bureaucracy that grooms the machines and the machine that seems to have a mind of its own only reinforces this negative attitude.

Despite such problems there are some distinct advantages that need to be taken into consideration in deciding to pursue any type of computer activity in a technical communication program. CAI development, for instance, has the potential for freeing class time for more important concerns than how to effectively use the comma. It also has a great deal of potential for assisting in collecting data about writing perceptions. Readability formuli create an interest in more careful use of language as well as a concern for the needs of the reader, the user of prose material. They also allow data collection for language studies. Text processing simulation gives the student a sense of the possibilities for

such machinery in "real world" situations. Finally, language analysis prompts students to indulge in close investigation of language processes from a variety of standpoints. It also forces students to learn more about the computer and its potential than would normally be the case.

All of these are ways in which the technical communicator learns how to use the tools that are on the leading edge of information technology. They will make him/her more aware of the function of language, of the ethical constraints on technological developments in communication, and of the role of the writer within those concerns.

NOTES

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2. Donald J. Foss, "Some Effects of Ambiguity Upon Sentence Comprehension," Journal of Verbal Learning and Verbal Behavior, Vol. 9 (1970), 699-706; cf., Donald G. MacKay and Thomas G. Bever, "In Search of Ambiguity," Perception and Psychophysics, Vol. 2 (1967), 193-200; cf., Donald G. MacKay, "To End Ambiguous Sentences," Perception and Psychophysics, Vol. 1 (1966), 426-436.

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4. D. E. Broadbent, "Word-Frequency Effect and Response Bias," Psychological Review, Vol. 74, 1 (1967), 1-15; cf., Jack Catlin, "Theoretical Notes on the Word-Frequency Effect," Psychological Review, Vol. 5 (1969), 504-506.

5. Patrick M. Rabbitt, "Learning to Ignore Irrelevant Information," The American Journal of Psychology, Vol. 80, 1 (March, 1967), 1-13.

6. Louise Rosenblatt, The Reader, The Text, The Poem: The Transactional Theory of the Literary Work. Carbondale, IL: SIU Press, 1978.

7. Paul E. Johnson, "On the Communication of Concepts in Science," Journal of Educational Psychology, Vol. 60, 1 (1969), 32-40.

TECHNICAL WRITING FOR ENGINEERING STUDENTS AT THE COMMUNITY COLLEGE

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Narrative

At the beginning of the fall semester, twenty students sit in a classroom, waiting for their instructor. The ACT composite scores of these students range from 5 to 32, with a mean of 20. Generally, their highest scores are in math and natural science, and their lowest score in English. These are engineering students, admitted under the open-door policy of the community college. While the majority have only the vaguest idea of what an engineer does, they have read the Occupational Outlook Guide and they know that if they can successfully complete four years of college, they will have earned competitive salaries, secure futures, and a place in the occupational outlook sun.

At the moment, however, these students are growing a bit restless. They are, after all, sitting in a Rhetoric course. They do not want to be in this or any other rhetoric class. While they may not be sure of what an engineer does, they know it has nothing to do with writing. They want only to work with numbers and computers and equipment, not with words. In fact, they will shortly demonstrate their preference on a Canfield Learning Styles Inventory and they will clearly show a preferance for

numeric content, almost to the exclusion of qualitative and interpersonal content.[1] Additionally, they do not want to learn by reading, but they do want to learn through direct experience.

In any case, these students are a bit hostile, waiting for this English instructor who is already three minutes late. They do not know that two instructors will enter the room: one an engineering instructor, the other an English instructor. Nor do these students know that soon they will be assigned a formal proposal -- due in three weeks.

The Combined Rhetoric-Engineering Lecture Course

We could apologize for using such a contrived introduction, but we won't, because the narrative serves to illustrate the basis for the work being done with university transfer students in engineering at Triton College. Four components were identified:

1. Many students at the freshman level are naive about engineering, and generally would not be introduced to the scope of the field during their college years.
2. Writing is a learning activity for which these students have little tolerance.
3. They do not perceive of writing as an activity relevant to their career goals.
4. Because of the wide range in student background and abilities (a typical disparity at the community college), there may exist a tendency to teach to the lowest common denominator.

In 1975, Triton combined an engineering lecture course (1 credit) with a first semester rhetoric course (3 credits). The team-taught course is being developed as part of a National Science Foundation (CAUSE) three-year grant to improve engineering curriculum at the undergraduate level.

This combination engineering lecture/rhetoric course is designed primarily to generate students' continued interest in engineering, to introduce students to aspects of engineering as a curriculum and as a career, to develop their experience in communication skills, and to introduce the correlation between science and the humanities. Through simulation, the course immediately involves the student in engineering and companion communication practices. The course, then, acknowledges that one of the primary roles of an engineer is to act as an information processor.[2]

Course Content

The technical content of the course is kept at a level appropriate to freshmen. While students are required to meet the sequential criteria of the rhetoric program, the course emphasizes introductory technical writing skills. The goals of the rhetoric segment of the course include the following:

1. Generating and discovering information.
2. Selecting a workable thesis or organizing ideas for a set of information.
3. Focusing the material by accommodating the reader's frame of reference.
4. Developing the paragraph effectively by relating pieces of information.
5. Effectively using standard technical formats.
6. Using the tools of writing, i.e., handbook, Thesaurus, dictionary, style sheet.

The goals of the engineering lecture segment of the course are as follows:

1. Familiarization with the occupational outlook of engineering.

2. Testing to determine engineering interest and attitude.

3. Meeting engineers and finding out what they do.

4. Dealing with dropping out of engineering.

5. Learning how to gather technical data and information in order to write a proposal and formal report.

6. Learning how to give a technical presentation.

As developed, the course is a kind of controlled smorgasbord. For every activity, parallel exercises in written, oral and graphic communications are assigned. Currently, students complete more than 25 writing assignments and 36 related activities in an 18 week semester. The main activities in the course include the following:

1.	Proposal	5 weeks
2.	Formal Report	7 weeks
3.	Oral Report	2 weeks
4.	Interview	1 week
5.	Description	3 weeks
6.	Business Correspondence	1 week
7.	Speakers/Abstracts	Throughout Semester
8.	Videotapes/Abstracts	" "
9.	Ethics Discussion	" "
10.	Readings	" "

In addition, students have five chances to pass a computer-managed technical vocabulary test.

Results

1. At the end of the semester, students completed a 186 item questionnaire evaluating the course. While students indicated that they had originally resented taking the course, they consistently rated it in the highest 20% of courses taken.

2. Engineering students with high ACT scores in English typically received lower than expected grades in Rhetoric I and II before the introduction of the combined course. While not yet statistically significant, the sampling

of engineering students from the course indicates they have done markedly better in Rhetoric II after taking the new team-taught course.

3. The English Department is currently conducting a computer-assisted holistic-grading assessment of 50% of the registered freshmen. The results of this project will indicate the transferability of writing skills learned in a course that emphasizes technical communication.

The results of this project suggest that many engineering students would profit far more from a course introducing technical communication than from a standard rhetoric course. Such an introduction may belong in the freshman year so that the principles a student learns can be practiced for three years before they are refined in an advanced technical writing course.

Like many colleges, Triton has no program in technical communication. While there is no question that a need exists for competent technical writers, educators are also recognizing the need -- stated clearly by industry -- for professionals who are also competent communicators. It may not be possible or advisable for every community college to have a program for the training of technical writers. It seems essential, however, that every community college assume the responsibility of developing a program to introduce technical communication skills at the undergraduate level.

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A PROPOSED, TERMINAL TWO-YEAR TECHNICAL COMMUNICATION PROGRAM

Dr. Steven M. Gerson
Johnson County Community College

At Johnson County Community College, I am currently concerned with the topic of this panel inasmuch as I am in the process of creating a two-year technical communication program, which I envision as being terminal rather than merely introductory.

The envisioned program would include approximately sixty hours, consisting of fifteen hours of general education courses (such as psychology, history, math, science, and business), fifteen hours of electives in a technical field (such as electronics, engineering, or drafting), and thirty hours in technical communication courses (such as an introduction to technical writing, business communications, speech, graphics, freshman English, fundamentals of grammar, technical reporting, journalistic reporting, editing, and an internship).

As such, the student enrolled in the program would benefit from as broad an educational background as possible in two years, which many businesses consider to be an asset in technical communication. The student would also have experience in a technical field, which employers see as mandatory. "Employment opportunities will be best for experienced technical writers and for beginners who have both writing ability and a scientific or technical background. People who cannot demonstrate both a technical background and communication skills may face stiff competition for beginning jobs" (Occupational Outlook Handbook, 1978-79, p. 6000). And, finally, the

student would receive intensive study in visual, verbal, and written technical communication.

The problem then is what will the student be able to do with the above courses. Will he/she be able to use these courses only as a stepping stone to a four-year college or will he/she be able to stop with the AA and get a job? To answer this question, my school's Institutional Research staff contacted local companies which employed technical communicators and which had expressed an interest in our proposed technical communication program. Initially, this survey proved to be disheartening since those who employed technical writers generally required that their employees had at least a bachelor's degree in a technical field. An executive vice president of one company preferred employees with graduate degrees, explicitly stating that a two-year degree was far too limiting for any expertise in writing. In fact, this vice president felt that many applicants with at least four-year degrees proved to be inadequate writers, unable to organize their thoughts at either the sentence or the paragraph level.

However, what this individual was ignoring was the unique aspects of a community college two-year program. For two reasons, a community college program can be successfully terminal. Whereas a four-year university is rather obligated to give its students a diverse education, suiting them for employment nation wide and in a variety of fields, we at the community college can be much more specific in our goals. Rather than trying to meet the nebulous requirements of employment nation wide, we can create a program that has as its primary goal the desire to meet the specific needs of our community's employers.

For instance, in the same survey of businesses conducted by our research staff, two companies expressed interest in our program. One company had two concerns; it needed people trained in packaging a product, or what the personnel administrator called "page architecture" -- editing a magazine so that space was best utilized without sacrificing design. Also, the administrator desired people who could re-write. That is, rather than needing creative writers or research specialists, the administrator wanted people who could take data discovered by others and then re-write this information. Because our program is at this point unformed, and because our program's existence is dependent upon the community's businesses, such as this one, we would and could create courses which have as their primary concern the fulfillment of these specific needs.

One could ask them how many students could be placed at this job. Realistically, the job placement ratio would be limited. However, the other company discovered by our research staff offers more long-term employment prospects. The company, relatively new and concerned with writing resumés, research reports, and letters, has a nation-wide referral system, plans to expand in the next several years, and desires to create branch offices in many of the nation's major cities. To accommodate this expansion, the company plans to hire ten to fifteen people a year. The new employees would fill entry-level positions, tackling such jobs as library research and writing rough drafts of resumés and reports. Inasmuch as we could easily train students in these areas, the company was definitely interested in our proposed program. More importantly, ten to fifteen job openings a year would be more than enough to act as the foundation for a fledgling program, with additional companies supplying additional openings. Therefore, our program could be terminal.

This, however, does not discount the vice president's assertion that two-year students would be unable to write as well as four-year or graduate students. Again, this assertion fails to take into account exactly who attends a community college. The average age of our students is twenty-six. Many of our students have worked a number of years and have real job experiences from which to draw. Some are veterans who have worked in technical fields; others have been free-lance writers for newspapers and magazines. Thus, their writing often evinces both their maturity and their practical experiences.

In this sense, I believe a two-year technical communication program can be highly effective. Our students are able, and our programs can be directly suited to meet specific needs. Though prejudices against two-year students will continue to exist and employment opportunities will be far from extravagant, on a limited basis, a two-year program can realistically be terminal rather than introductory.

EASTERN WASHINGTON UNIVERSITY
PROGRAM IN PROFESSIONAL WRITING

Kathy Stege
Department of English
Eastern Washington University

Program

The Eastern Washington University Department of English offers a Master of Arts with an emphasis in Professional Writing. Designed to prepare students for the special communication needs of a technological society, this program will:

- help prepare students for careers in either general or specialized fields of written communication;
- train students to retrieve, interpret, and communicate information for mass as well as professional audiences;
- aid specialists from other disciplines in preparing for writing careers in their chosen fields.

Graduates of this program will be trained to meet the increasing demand for clear, concise forms of communication in book and magazine publishing, business, industry, government, and education.

Degree Requirements

Prerequisite: A bachelor's degree from an accredited college or university is required for admission to the Professional Writing program. This degree need not be in English. Students majoring in other fields are

also encouraged to apply, although they may be required to make up certain undergraduate deficiencies. Interested students should apply through the regular admissions procedure established by the Eastern Washington University office of Graduate Studies. The aptitude portion of the Graduate Record Examination is required.

Course requirements: Sixty (60) credits of course work are required. Students will complete their work from the following offerings (required courses appear with an asterisk):

* Development and Use of English Language or Old English
  or Advanced Grammar and Usage
* Graduate Research Methods
  Professional Essay
  Film and Video Scripting
  Basic Editing
  Editing Workshop
  Rhetorical Modes of Technical Writing
  Proposal Writing
  Non-Fiction Workshop I, II, III
  Business Publications
  Seminar: Professional Writing
* Internship

Electives: Approved electives may be included to round out the individual's program. Courses may be chosen from the student's major field or from among the following complementary offerings within the Departments of Radio-Television, Communication Studies, Industrial

Education and Technology, Computer Science, and Business Management.

Career Options

Eastern's Professional Writing Program is designed to help prepare students for highly flexible ca[illegible]rs in business, industry, education, and government. Positions as w[illegible]ters, editors, publishers, educators, trade publication managers, information specialists, researchers, consultants, television and radio scriptwriters, documentary film researchers, photojournalists, popular and scientific magazine writers, newspaper reporters, and free-lance non-fiction writers are among the opportunities open to individuals skilled in the art and craft of professional communications.

Writing Fellowships

In addition to teaching fellowships, the English Department has a number of writing fellowships available to qualified candidates in the Creative and Professional Writing programs. Writing fellowships require the recipients to work 16-20 hours a week on professional writing assignments for the university, government agencies, business firms and various other participants in the English Department's graduate writing programs. Assignments may include such things as writing press releases, video and film scripts, brochures, grants, technical papers, newsletters, and features for magazines and newspapers. The writing fellowships are intended to provide a candidate with professional writing experience in the same way a teaching fellowship provides a candidate with professional teaching experience.

Literary Agency

A New York literary agency is retained by the English Department to assist in the marketing of manuscripts submitted by students in the graduate writing programs. The agency also provides advice to students on various professional matters relating to writing and publishing.

PROBLEMS OF DEVELOPING AN UNDERGRADUATE DEGREE PROGRAM IN TECHNICAL COMMUNICATION IN A GENERAL-PURPOSE UNIVERSITY

Butler H. Waugh
Florida International University

I have been "developing programs" in the State University System of Florida almost since I joined the English faculty at the University of Florida in 1961. In 1965 I began to work as a part-time writer/editor in the Division of Sponsored Research at University of Florida, and in 1968 went to Tallahassee to work as a statewide program Coordinator in Humanities and Fine Arts for the Board of Regents Staff. After a year of that -- in which I assisted in writing the statewide development plan and plans for the new Dade and Duval Universities -- I moved to Miami, assigned to develop the initial academic master plan for FIU and to help hire the initial staff. There were four on that original team. In 1970, I was appointed Dean of the College of Arts and Sciences, and for five years, until I resigned, I planned, developed, and "envisioned" the new University. I went back to the faculty -- and after a couple of years of R and R in Mexico and Italy, I once again got involved both in our university's plans to expand into a lower-division (and become a four-year school) and in our departmental plans to develop what we call our "applied writing" program.

It has not been born yet, except that some courses have been approved. Eventually, what we have now will be part of a lower-division writing core supplemented by an expanded junior-senior program in Technical Communications probably done in cooperation with our Communications program in the School of Technology. I think such a program in technical "communications" will

develop at FIU out of both our expanded freshman-sophomore faculty and our responsibility to meet the graduate training needs of the state's largest urban area.

There are three major problems that I see at Florida International in developing such a program: 1) getting the faculty positions necessary to provide a "critical mass" capable of delivering a program in technical communications; 2) coordinating our English department course offering with the professional programs in Technology, Business, and Hotel Management, i.e., we begin as one component in a program in another school; and 3) developing a teaching emphasis in technical communication which will allow our English literature teachers to transform themselves with style and grace into technical writing teachers.

Technical writing courses that are developed at most non-technical institutions serve a very wide audience. Most of these courses would more aptly be called "vocational writing" or "occupational writing." Since nobody has defined adequately the limits of technical writing in the schools, teachers develop courses which they hope will have some relevance for students' subsequent careers. What holds all of these students and teachers and courses together, therefore, is an abiding interest in communicating in what Fred MacIntosh called the "world's work." The course I teach now at Florida International University is, despite its title ENC 3353, "Report and Technical Writing", primarily a vocational or occupational writing course which we created in 1972 when we opened as a new university. In one of my classes of 25 students, six were native Spanish speaking, two French-Creole, and one Nigerian. The remainder were in various stages of developing their native English and adapting it to their careers. The majors broke

out roughly as follows: 4 English majors (all of whom had ambitions for Law School); 1 history, 1 biology, 2 economics, 1 social work, 7 business administration, 4 accounting, 3 hotel majors (or, as we call them, "hospitality management"), and 2 in air transportation management. Not an engineer in the bunch! and only one scientist! The course reflects the wide variety of student interests.

Next year, we will "spin out" four new technical communications courses for which we are sure to have an enrollment:

ENC 3351 - Business Letters and Reports,

ENC 3343 - Basic Technical Writing,

ENC 4356 - Report Writing, and

ENC 4354 - Scientific Writing

In addition, the School of Technology has developed a wide-ranging array of courses in "Communications," and will soon begin to grow -- largely in the area of "non-print journalism." As we develop our program into a major, we will include the following courses as well as courses in word processing, publications program design, etc:

JOU 4307 - Industrial Publication

MMC 3000 - Survey of Communications

VIC 4300 - Communications Technology

When these courses have been taught (within the year) we will have the core for a basic technical communications curriculum which can always be fully enrolled, even though we are not an engineering or technical university. The next step would be the development of a major program. While our more esoteric English department offerings will continue to be taught,

the technical writing courses will probably be our bread and butter courses. Ultimately, I would like to see some of these courses supplant our "Advanced Composition" courses and become the center of our writing program at the junior-senior level. And when our lower division is approved, our basic courses will find a place in the writing sequence.

We expect each of our new courses to have a more homogeneous audience than we presently teach in ENC 3353. Indeed, as our university had developed, departments are requiring majors to take our "technical writing" course. Just recently, all Computer Science majors (about 150) have been advised that in Fall 1980, ENC 3343 "Basic Technical Writing" will be required for graduation. Psychology (100 majors) is considering a similar requirement. This spring we begin to teach ENC 3351 "Business Letters and Reports" which will be filled with hotel management majors and business types. We will retain the present course and its catch-all student audience. One of the reasons for its success is the emphasis we place on the adaptability of the writing techniques learned. In general the course is successful because we emphasize structure, style, and tone. We apply what we learn to a variety of writing situations. Because people trained to teach English literature and composition know something about these elements, we plan to begin each new technical writing teacher in this general course with the rhetorical emphasis clearly explained to him or to her. We hope to hire new literature faculty with an openess to the teaching of technical writing.

Since we cannot now justify hiring plain writing teachers, we are interested in developing our literature faculty's technical writing expertise by emphasizing rhetorical modes. These new teachers would be asked to "intern" with experienced instructors for a term. Most technical

writing courses with audiences not homogeneously engineers or other technically oriented people lack focus because of their inordinately detailed and specific concerns for report formats. To put a new teacher into such a course perpetuates the concern for formats. One way to avoid these "trees" and keep the "forest" foremost is to provide the specific substance of these formats organized around general concerns which are of importance -- and are adaptable to future work problems. This means that from the first day, the new teacher emphasizes the more or less qualitative and rather filmy issues of structure, style, and tone.

Because most of the student's prior composition training has been "creative" and "expressionistic" (as has his teacher's), most texts in technical communication do not emphasize elegance but instead focus on "controlled expression," anonymity and impersonality. The "creativity" of the composition course gives way to hardnosed business of communication. In contrast to the format emphasis our literature instructors will be urged to teach technical writing by 1) adopting flexible, over-all structural patterns at the beginning of all writing projects; 2) reiterating the importance of style as that element which most effectively projects the personality of the writer in an easily readable manner even in the most anonymous kinds of technical prose; and 3) emphasizing the continuous awareness and analysis of audience and its corollary tone, as that element which establishes relationships between the writer and his audience, and the writer and his material. All three of these rhetorical elements are derived from fundamental choices, i.e., they depend upon the selection of individual words and the arrangement of larger units like the sentence and paragraph to achieve the proper emphasis for a given context. Such "belle

lettristic" concerns are applied to exercises in different report formats that exemplify the descriptive, narrative, analytical, and argumentative modes of course. These general concerns are unifying in a course whose substance tends to be disparate formats. They enable the English teacher, moreover, to adapt his general experience as a writing teacher to the specific demands of technical communication.

Typically, the course will begin with the most emphatic treatment of structure -- what it is in good writing, the importance of fixed organizational patterns which can be tentatively adapted to specific projects at the very beginning; the ways that one must constantly keep "structure" in mind as the writing project develops, the importance of a fluid structure that can change to meet the demands of the material. Four patterns are introduced: 1) the mechanism description (which the students initiate), 2) process narratives, 3) a short analytical report format, and 4) the feasibility report format, -- an argumentative form which is the basis for the long term report. This last report is monitored, from the choice of topic through bibliography, outline, graphics, first draft, and final draft.

In addition to structure, style and tone are emphasized from the beginning. In overly simple terms, we define style as "projection of personality" in the most appropriately "readable" fashion, and tone as "relationship to audience." We take these oversimplifications through the course. Students prepare a Report Work Sheet for each writing exercise (developed by Thomas Pearsall at Minnesota). This Report Work Sheet establishes (by repetition if nothing else) an immediate awareness of style (writer's purpose) and tone (reader, reader's purpose). As the

quarter progresses, the student begins to see that one can fluidly adapt one's style as one's purpose changes and one's tone as one's reader or reader's purpose changes. Thus, both ideas are given contexts. Both are relative to situation; both are functions of one's developing sense of appropriateness or what the literature teacher would call "taste" in an aesthetic context.

Tone is a matter that's best presented in analogy with "tone of voice." The "presentational speaking" that occurs in the course (in the "graphics" portion and at the end when the results of the feasibility study are presented orally) stresses audience analysis. But the Report Work Sheet is the chief way that tone is kept always in the forefront of the students' mind.

In each writing exercise, the student is expected to discuss the structure he is developing, the style of presentation which he thinks is most appropriate, and the tone which he feels is most effective in relating the substance of his report to the audience he has decided will read it. Because of these emphases, the course can be described not only as "technical writing," but also as an advanced writing course that uses as its subject matter the world's work, but whose emphasis is upon descriptive, narrative, analytical, and argumentative modes of discourse within the context of elegant structure, style, and tone.

Putting the inexperienced English teacher in such a course provides the smoothest kind of transition. The rhetorical concerns and the variations of rhetorical modes which he has taught in composition are easily adapted to the subject matter -- technical -- and to the forms -- formats -- of technical communication.

DEVELOPING A GRADUATE DEGREE PROGRAM IN TECHNICAL COMMUNICATION

Patrick M. Kelley
Department of English
New Mexico State University

Coincidentally, our problems of developing a graduate degree program in technical communication in the Department of English at New Mexico State University began exactly two years ago today. Our problem was named Linda Stout Chavarria, a name that I name because it will become a name of note in technical communication and the teaching of technical communication.

Linda was a problem for us when she entered my office two years ago today because she wanted to earn a master's degree in technical communication. She was a problem because we had no graduate program in technical communication. Except for her, we had no graduate students to enter such a program. With the possible exceptions of myself and one colleague, we had no graduate faculty to staff such a program. And except for one graduate-level workshop in technical and professional writing, which was listed in the catalog but which never had been offered, we had no graduate courses to comprise such a program.

However, though Linda was a problem, she was also a solution. Times being as they were then and still are now in departments of English, we had

more graduate assistantships to be filled than we had applicants to fill them. And times being as they were then and still are now in universities, we had to fill our assistantships or lose the funding for them. Therefore, our former department head and the former chairman of our Graduate Studies Committee asked me to plan a graduate program for Linda that would enable her to earn the M.A. in English with emphasis in technical and professional writing and that would enable us, in turn, to award her an assistantship. By a month later, with Linda's advice and consent, I had planned the program, solving one problem but causing another problem.

The program itself was the problem. It was, in fact, an immediate problem because of its inflexibility. (See the program, Appendix A.) As a graduate assistant, Linda was required by University policy to take 9 credits per semester. In her first semester, 6 of these 9 credits had to be from independent study courses because, of the courses in the program, only one was offered that semester. As Linda remarked pointedly at the time, if she were to earn a graduate degree in technical and professional writing instead of in independent study, we would have to solve the problem of the inflexibility of the program.

The problem of inflexibility in the original program was caused by our original problems: only one graduate course in technical and professional writing in the catalog, no graduate faculty to teach other courses, and no graduate students to take other courses. Back to the old problems, we set out to solve them--those that can be solved--with a new program. This new program, which was planned with the advice and consent of our graduate students, is so flexible that it enables us to maneuver around any problem that cannot be solved. At the same time, it is academically solid, financially sound, and professionally salable. (See the program, Appendix B.)

The component that is the keystone of the new program is our English 577, Workshop: Advanced Writing--Technical and Professional Writing, still the one and only graduate course in technical and professional writing in the catalog. The course is described in the catalog as follows:

> ENGL 577. Workshop: Advanced Writing--Technical and Professional Writing
>
> Intensive practice in scientific and business writing in a workshop environment with peer criticism. May be repeated for a total of twelve hours credit. Prerequisite: Consent of instructor.

The course may be repeated because a workshop changes every semester as its members change and as their work changes.

As the only graduate course, our Workshop in Technical and Professional Writing must be all things to all of our graduate students in technical and professional writing. And it is all things to them. It is a course in writing in which our students practice writing by writing themselves, practice that emphasizes not only the written products, but also the writing process(es). It is a course in editing in which our students practice editing by editing the writing of other students who are in the workshop from other departments and colleges within the University, practice that also emphasizes not only the edited products, but also the editing process(es), including the people within the process--the other students with writing to be edited, such as a doctoral student in computer engineering, for whom English is a second language, who is writing a dissertation titled "Real-time Fault Detection of Multiple Microprocessor Systems" or a brilliant but difficult senior in soil science who is already writing his second paper for presentation at a national conference, this paper titled "Nonionic Surfactant Effects on Adsorption and Degradation of 2,4-D." It is a course in the forms of technical writing in which our students practice the forms of writing from the Society for

Technical Communication's edition of Handbook of Technical Writing Practices, volumes 1 and 2, the bible of technical writing. And it is a course in graphics in which our students practice graphics by producing, for instance, the brochure that advertises their own program, the M.A. in English--Emphasis in Technical and Professional Writing.

Ideally, the course is each of these things consecutively as our graduate students repeat it from semester to semester. Really, it is some of these things--or sometimes all of these things--simultaneously every semester. Our Workshop in Technical and Professional Writing is as flexible as it must be to enable us to maneuver around the problem of its being the only graduate course in technical and professional writing in the catalog.

Another flexible component of our new program is the minor in the Department of Computer Science, which was planned with the advice, consent, and moral support of Dr. J. Mack Adams, Head of that department. This component enables graduate students who enter the program without a technical field to leave it with a technical field that complements their degree in technical and professional writing. And computer science--now and as far into the future as we can see--seems to Dr. Adams and to us to be the technical field that is the best complement for technical and professional writing.

The most flexible component of our new program is the set of electives from any department or college within the University: from our department and/or from related departments in the College of Arts and Sciences, including Foreign Languages, Journalism and Mass Communications, Linguistics, and Speech; and/or from a technical or professional field in any of the other colleges of the University, including Agriculture and Home Economics, Business Administration and Economics, Education, Engineering, and Human and Community Services; and/or from a technical or professional field

in the College of Arts and Sciences itself. This component thus enables a graduate student who enters the program with a technical or professional field--a student with a B.S. in Chemical Engineering, for instance--to take electives in that field to complement the degree in technical and professional writing. It enables a graduate student without a technical or professional field to take electives in another technical or professional field besides computer science. Or it enables any graduate student to take electives in non-technical fields closely related to writing, especially electives in speech and communication, linguistics, journalism and mass communications, foreign languages, and/or English itself to supplement the degree in technical and professional writing.

These two components of our new program, the minor in the Department of Computer Science and the set of electives from any department or college within the University, enable us to maneuver around the problems of our having only one graduate course in technical and professional writing, not enough graduate faculty to teach other courses, and not enough graduate students to take other courses. Lacking resources in our own department, we draw--resourcefully--upon the resources of the entire University.

Several maneuvers ago, I stated that our new program is academically solid, financially sound, and professionally salable. Indeed, it is all of these things.

That the program is professionally salable is suggested by the fact that six graduate students have bought it without our selling it to them and even without our advertising it. They have bought the program because they are confident that, with the interdisciplinary combination of technical and professional writing and a technical or professional field, they can sell it, in turn, to employers. Although she has not yet completed the program,

Linda Chavarria is competing now for a position as a technical writer. And although she has not yet completed even half of the program, another graduate student, Mary S. Hageman, has been invited to apply for another position as a technical writer.

The program is financially sound because of the fact that, interdisciplinary as it is, it requires so little financially of our department. It requires only the one graduate course, of course. It requires only a few graduate faculty, more to serve as advisers--and especially as thesis advisers--than to teach the one course. We now have three graduate faculty members who specialize in technical and professional writing: Dr. Joseph F. Tuso, our new Head, formerly of the Air Force Academy, whom many of you know; Professor Roger E. Masse, who earned the M.S. in Technical Writing from Rensselaer Polytechnic Institute and whom many of you know; and myself. Because Joe's and Roger's and my qualifications in the field are stronger academically than they are professionally and because graphics is our weakness, financing one more graduate faculty member whose strengths are professional experience and graphics would strengthen us as a whole. And four graduate faculty members could serve as advisers to all of the graduate students whom I want to serve in the future. Our present graduate students in technical and professional writing have been a financial savings for our department. With four of them holding assistantships, they are saving for us assistantships that we would have lost otherwise because of a lack of applicants to fill them.

That the program is academically solid is suggested by the fact that our graduate students have done significant work within it. They have done this work not only because they are talented students, but also because the interdisciplinary combinations within the program are paying off. Combining a course in literacy theory that she took with Dr. Richard P. VanDeWeghe and

the Workshop in Technical and Professional Writing, Linda Chavarria has written a manuscript on the application of literacy theory to teaching technical writing that is with reviewers and that we are confident will be published. Similarly, combining a course in communication theory that she took with Dr. Gordon R. Owen and the Workshop, she has written a manuscript on non-verbal communication that is also with reviewers and that we also are confident will be published. Mary Hageman, Adelaide J. (Johnnye) Burnham, and Linda Chavarria, combining a course in modern rhetorical theory that they took with Dr. Charles W. Bridges and the Workshop, have written papers on visual rhetoric in technical writing that have been accepted for presentation at the 27th International Technical Communication Conference--the most prestigious conference in their field, as you know--and that will be published in the Proceedings of that conference. And we already have had an expression of interest in publishing Linda's thesis, an editorial effort that is appropriate for a master's candidate in technical and professional writing, as a book.

Two years ago today, we did not have a graduate degree program in technical communication in the Department of English at New Mexico State University and we had severe problems to solve before we could develop such a program. Today, we have a program--not because we have solved our problems, which, like the poor, are always with us, but because we have maneuvered around them. We have maneuvered toward a developed program.

COLLEGE OF ARTS AND SCIENCES

DEPARTMENT OF ENGLISH
Box 3E/Las Cruces, New Mexico 88003
Telephone (505) 646-3931

APPENDIX A

March 14, 1978

TO: Joseph A. Buttigieg, Chairman, Graduate Studies Committee

FROM: Patrick M. Kelley

SUBJECT: Graduate Program for Linda S. Chavarria

You and Linda Chavarria asked me to plan a graduate program for her that will enable her to earn the M.A. in English with an emphasis in technical and professional writing. I suggest the following program, which is based on our program for the M.A. with an emphasis in creative writing.

1. 9 credits from English 577, Advanced Writing: Technical and Professional Writing, to meet the major-genre requirement and to prepare for the written examination on the major genre;

2. 3 credits from English 576, Advanced Writing: Magazine and Article Writing, or from English 578, Advanced Writing: Translation (English-Spanish translation of technical and professional writing), to meet the minor-genre requirement and to prepare for the written examination on the minor genre;

3. 6 credits from Linguistics 451, History of the English Language, and Linguistics 453, Linguistic Theory, to prepare for the written examination on the history of the language and linguistic theory;

4. 6 credits from Speech 483 (Linguistics 483 and Journalism 483), Theories of Communication, and Speech 556 (Linguistics 556), Human Communication Theory, to prepare for a written examination on communication theory as a substitute for the examination on critical theory;

5. Either 6 credits from English 500, Supervised Study, in the technical or professional writing of particular periods or figures, in the pedagogy of technical writing and business writing, or in a practicum in technical and professional writing, or 6 credits from approved electives to prepare for an appropriate written examination as a substitute for the examination on twentieth-century British and American literature;

6. 6 credits from English 599, Master's Thesis, to write the thesis.

So that Linda can follow this rigorous program, I suggest, of course, that we waive the distribution requirement.

pc: Linda S. Chavarria

COLLEGE OF ARTS AND SCIENCES

DEPARTMENT OF ENGLISH
Box 3E/Las Cruces, New Mexico 88003
Telephone (505) 646-3931

APPENDIX B

NEW MEXICO STATE UNIVERSITY

The Master of Arts Degree in English--
Emphasis in Technical and Professional Writing

12 credits	from	English 577, Workshop: Advanced Writing--Technical and Professional Writing (or 9 credits from English 577 and 3 credits from English 578, Workshop: Advanced Writing--Magazine and Article Writing, or English 579, Workshop: Advanced Writing--Translation, or another adviser-approved English course in writing)
8-9 credits	from	Computer Science, including Computer Science 452, Social Implications of Computing (for a minor in computer science--with a minimum of 8 credits necessary for a minor--and for a technical field)
9-10 credits of adviser-approved electives*	from	English and/or related departments in the College of Arts and Sciences, including Foreign Languages, Journalism and Mass Communications, Linguistics, and Speech, and/or a technical or professional field in any of the other colleges in the University, including Agriculture and Home Economics, Business Administration and Economics, Education, Engineering, and Human and Community Services, and/or a technical or professional field in the College of Arts and Sciences itself (for another technical or professional field, if desired, in agriculture or home economics, business administration or economics, education, engineering, human and community services, or any of the arts or sciences)
6 credits	from	English 599, Master's Thesis

A total of 30 credits plus a thesis

A final oral examination covering the thesis and the course work

*1-3 of these elective credits may be taken in English 598, Practicum in Writing (a practicum in writing arranged by the student and approved by the adviser with the work of the practicum to be documented by the student through a method approved by the instructor)

INTERNSHIP PROGRAMS: CURRENT PRACTICES AND FUTURE CHANGES

R. John Brockmann
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Internship programs (1) are a longstanding example of successful cooperation of industry with academic technical writing programs. Most technical writing programs across the country include internships, and over four hundred students have been interns. Of these four hundred student interns, seventy-five percent successfully found technical writing positions when they graduated.

But research presented in this paper demonstrates that internships are by and large conducted in a dilettante fashion rather than as a rigorous institutional enterprise. The lack of rigor and organizational sophistication of the programs' designs leave them especially vulnerable to several problems:

- A lack of control over the conduct of the industrial hosts
- A lack of integral generalizing activities
- A lack of rigorous self-evaluation

This paper is directed to current internship program directors and those considering the development of such programs. In this paper we look for the causes and solutions to these problems by doing two things. First, we review the rationale behind the internships to see why they are such an integral part of technical writing programs. Second, we analyze the

distinctive features of internship operations directly, and in contrast to similar programs, specifically the traditional cooperative programs.

In conclusion, we discuss the specific implementation of a number of recommendations. These recommendations are:

- Increase faculty contact with industrial hosts.
- Incorporate generalizing activities into the midst of the internship as it is occurring.
- Apply rigorous standards during periodic program assessments.
- Increase institutional commitment to internship programs.
- Redesign the sequence of activities in internship programs.

Let us begin by considering the rationale behind internship programs.

1. The Rationale Behind Internships

The importance and popularity of internship programs are based on the numerous benefits derived by all participants in the venture: students, technical communication programs, and industrial hosts.

The student who participates in an internship program gets three primary dividends. He receives the opportunity to broaden his exposure to people, environments, and situations that he will probably encounter in his later professional career. He also tries out his communication skills under stress in the field and gets an evaluation of his abilities that no grade on a paper delivers. (2) And the student gets an experiential reference for his classroom theory, a reference that better gives him the ability to assess and incorporate classroom instruction.

The technical communication program that includes internships is far more meaningful and successful than its campus-bound companions for a number

of reasons. Internships are good public relations for an academic program; programs get community and industrial exposure for their most important products -- their students. Internships are also an excellent vehicle for receiving industrial feedback on programs and for keeping pace with the industrial community. Internships also teach students skills which are impossible or uneconomical to contain within the walls of a classroom (e.g., the production or interpersonal communication parts of a technical communicator's job (3)). Finally, internships whet the learning appetites of students by sensitizing them to their areas of weakness.

Companies which host interns receive as many benefits as the other two participants in the venture. As immediate practical benefits, internships can give a company economical assistance in time of a manpower shortage. (4) Companies can also get an extended preview of prospective employees thus making recruitment efforts much easier. (5) And interns can sometimes provide the fresh objective ideas needed to solve longstanding problems.

More altruistic dividends of participation in internships for companies include the knowledge that they are helping interns be more immediately productive for any future employer. Furthermore, internships are an excellent public relations vehicle; they demonstrate a company's commitment to the community.

Students, programs, and companies all come away richer for participating in an internship.

2. The Distinctive Features of Technical Writing Internship Programs

In examining the inner workings of existing internship programs, we combine personal observations, published discussions, and the findings of a ten program survey on internships. (See Appendix 1 for a full description

of this survey and its findings.) To highlight the distinctive features of internship programs, we contrast them to their educational antecedents, cooperative educational programs (coops).

There are four essential components of all internship programs: their academic institutional environment, the faculty intern supervisor, the student intern, and the industrial host.

The academic institutional environment of internship programs in technical communication has four primary features:

- Internships are institutionally marginal enterprises; most are not required of students, and they average only 13% of the total required credit hours in technical communication. (See the results of Question 9 of the survey.)
- Internships are arranged on a flexible, individual basis, and rarely include any organized group-intern activities. (See the results of Question 11 of the survey.)
- Internships retain their integrity in their liberal arts surroundings because programs require papers or oral reports at the conclusion, and because most interns receive nominal pay or no pay for their work. (See the results of Questions 10 and 12 of the survey.)

Internships are quite different from traditional cooperative educational programs in their institutional setting because coops are unabashedly vocational programs. Coops seek salary parity for their students with other employees of the industrial host (6), and they represent a much higher proportion of the student's required educational credits. (7) Thus cooperatives are anything but marginal enterprises.

Faculty intern supervisors have three distinctive features in technical communication programs:

- They devote a great deal of individual attention to the interns. Most supervisors handle no more than three interns per semester or quarter, and most devote more than eleven hours per semester or quarter to each intern. (See the results of Questions 17 and 18 of the survey.)

- They conduct their supervisory efforts on an impromptu basis, visiting interns on an irregular schedule, and they depend heavily upon the critiques of the industrial host for any grades to be submitted. (See the results of Questions 14 and 15 of the survey.)

- They are typically alone -- there is usually only one designated intern supervisor at each school, and this supervisor is usually chosen for his expertise in the field of technical communication. (See the results of Question 16 of the survey.)

Traditional coops, on the other hand, devote considerable attention to a supervisor's affective teaching abilities -- his counseling abilities and his ability to nurture good "work habits." (8) Traditional coops also emphasize regularly scheduled faculty visits to the intern site. Instead of just a one-man supervisory team, traditional coops usually have a two- or three-man administrative/supervisory team. (9)

Interns and their experiences have three distinctive characteristics:

- The interns constitute a hand-picked, highly qualified group. (See the results of Questions 3, 8, 9, and 19 of the survey.)

- Their internship experience is as brief as it is intense, averaging over 18 hours per week for two to three months. (See the results of Question 21 of the survey.)

- On the job, interns usually gain additional practice in skills learned in the classroom, especially writing and graphics. (See the results of Question 20 of the survey.)

In contrast, students in traditional coops are often less inclined to academic excellence, performing best outside the classroom. (10) And whereas internships must share the intern's time with the simultaneous

demands of the classroom, coops are usually full-time experiences for an extended length of time. (11)

Industrial intern hosts exhibit three distinctive characteristics in technical communication programs:

- Only a limited number repeatedly sponsor interns. (See the results of Question 23 of the survey.)
- They are enlisted into the internship program by personal contact with people from within the program or department. (See the results of Question 24 of the survey.)
- They treat interns almost exactly like a new employee: requesting resumes, scheduling job interviews, and giving them initial orientation to the job. They usually, however, do not give interns any formal educational attention. (See the results of Questions 25 and 26 of the survey.)

Coops, on the other hand, require that industrial hosts give interns special educational opportunities. (12) Recruiting of hosts is often done by special cooperative education administrators who recruit for many disciplines and curricula. Also, coops usually have a large number of local industries who serve as hosts.

There are a few additional distinctions between coops and internships that have not yet been mentioned. Internships are a one-shot experience contained within the brief span of two to three months. Coops, especially those funded under federal grants, are reoccurring experiences that alternate with classroom experiences. (13) Moreover, internships are narrowly focused on a single kind of industrial activity (communication) spread over a national scale, whereas coops have a focus on a broad number of industrial activities spread over a strictly local scale.

All of these contrasts can be summarized in the following ways.

internships are content-centered, selective, and viewed as an extension of liberal arts. Coops are student-centered (14), inclusive and viewed as an extension of vocational-technical education. Finally internships look to the classroom and libraries for their fulfillment, while coops fondly remember the on-the-job apprenticeship education of old.

3. Current Weaknesses and Recommended Solutions

Most of the problems encountered by internship programs stem from the ambivalent reception they receive from their academic institutions; on the one hand, internship program designers emulate vocational coops, and, on the other hand, program designers' liberal arts mentality denies the aspect of pay and denigrates internship's academic value in the form of credits. (15) The result is that internships may be conducted in a dilettante fashion rather than as a rigorous institutional enterprise. Their lack of rigor and organizational sophistication can leave them especially vulnerable to several problems, among them: a lack of control over the conduct of the industrial host, a lack of integral generalizing activities, and a lack of rigorous self-evaluation.

The solution to any and all of these problems calls for internships to be less capriciously organized. Internship programs have been fairly successful in the past. But the number of hosts and interns has been quite small, hand-picked, and personally organized. Without an increase in organizational sophistication, there can be no hope of successful growth in the future to include larger numbers of interns and hosts in the programs (16)...and, with ever occurring personnel changes, there can be no guarantee of the present rate of success. (17)

Lack of Control Over the Conduct of the Industrial Hosts

Industrial intern hosts want interns to be productive (18), and this desire implies that interns be assigned projects that are relatively easy for them to master. But "easy" tasks may not be synonomous with "truly educational" tasks. In fact, education at its best moments is rather a difficult matter because students are asked to solve problems they've never done before. Problems that stretch and widen a student's abilities are often not problems that are quickly solved.

It is relatively simple for industry to keep the intern tasks difficult. Tasks can be kept difficult, and therefore educational, by increasing the tasks' complexity with time, or by adding novel elements with each new assignment.

Even though it is relatively simple for industry to keep the tasks difficult, productive, "easy" jobs are likely to occur in uncontrolled internships because industry desires productivity, and interns find less anxiety-provoking risk in "easy" work. Therefore to maintain an essential level of difficulty in internships, program controls over industrial hosts must be increased.

The level of task difficulty, though is not the only element that must be assured at the internship site. Rich feedback for the intern must also be guaranteed. At first glance, this does not seem to be a problem. But when we think about the "spans of discretion" the student and the industrial host are accustomed to using, the problem becomes more evident.

The "span of discretion" (19) is the span of time a person has to act without feedback or evaluation from another. Students entering an intern-

ship have usually been trained for more than 13 years to have a short span of discretion. Tests, quizzes and daily classes give the student a constant and daily stream of feedback. But business and industrial professionals are accustomed to much longer spans of discretion. In fact, many supervisors find it extremely difficult to limit a subordinate's span of discretion by giving him evaluative feedback.

The problem is clearly that students want and need feedback much more than industrial hosts are accustomed to giving, or feel comfortable giving. Control over industrial internship hosts is the only assurance of rich feedback for the intern.

Increased control over industrial hosts is achieved through two integrated actions. First, establish with the industrial host the need for difficulty in intern tasks and for rich feedback, before the intern begins work. Faculty supervisors should meet with the host company and mutually develop an agreement. The agreement can take the form of a handshake or of a written document. But it is essential that the agreement be established. Second, there must be continued maintenance of the agreement. Host compliance should be assured through regular personal visits to the intern site by the faculty supervisor. These visits can be supplemented by intern critiques of hosts on a monthly basis.

To ensure the educational caliber of internships, we must have quality assurance over the experience. Control of the industrial host is essential to a good internship program. (20)

Lack of Integral Generalizing Activities

The classical model of education postulates that from specific individual experiences a student should develop generalizations applicable to a wide variety of future events. College classroom learning has often been accused of being too general, and of being isolated from the specific, practical concerns of the business world. Internships were partially a response to these accusations. But many internships, as they are currently practiced, can be equally accused of just the opposite problem; of being too narrow, and of being caught up in the specific individual experiences of a single industrial setting. The basis for these accusations is that interns fail to generalize effectively from their experiences. (21)

The survey showed that most schools require interns to develop some sort of summary analysis of their experience at the end of the internship. (22) This summary analysis is usually the sum total of the generalizing experience of the intern. All too often though, this assignment looks to the interns like meaningless busywork because it is not an integral part of their internship experience. Basically, such papers or reports happen too late; everything has already happened and all the interns' sharp distinctive experiences are sinking rapidly into one grey mass in their memories.

The much more effective way to get interns to generalize from their experiences is to incorporate generalizing activities in the internship as it is occurring. This can be implemented in a number of ways:

> Alone the intern can read assigned relevant readings from publications analyzing the profession, and write daily or weekly journal entries discussing whether or not these general principles are verified or falsified by his own personal specific experiences.

Together with the advisor in weekly meetings or reports, the advisor's feedback can channel the student towards important generalizing activities.

Together with other interns in weekly or biweekly meetings, interns can compare notes and discuss topics of mutual interest.

This last method is by far the most effective, and yet it is equally the most difficult to implement. It is the most effective because the element of self-discovery (one of Dewey's favorite terms) is much higher in the peer group interactions. (23) It is the most difficult to implement because this method automatically reduces scheduling flexibility in internships.

Rich experiences together with recurrent generalizing activities can make internships one of the most effective teaching methods of technical communication programs.

Lack of Rigorous Self-Evaluation

Good business policy dictates that operations personnel should never be their own auditors. But good business policy is flagrantly violated in internships. With usually a single faculty supervisor directing the program, there is rarely any assessment of internship policies and procedures. Yet if such programs are to grow and mature, assumptions must be continually challenged and procedures constantly reevaluated.

To help in this program assessment, we can look to a passage in a recent article (24). In his article, Mr. Wyld lists an excellent set of benchmarks that can easily be applied to all internship programs. Wyld writes:

> Externships and field study incorporate the vocational in the intellectual process...such a program should never be simplistic, never a way out of work. Ideally, it ought to be:
>
> Off-campus
> Difficult
> Confidence building
> Rigorously evaluated
> Documented by the student in writing
> Clear, intelligent work
> Always related to academic course work
> Project-goal associated (not just "going to work")
> Supervised by a professional

Let us be as rigorous about our program design and implementation as we profess to be about evaluating our student's work.

Future Internship Program Possibilities

Many organizational problems -- the dilettante style of internships and their lack of organizational sophistication -- may in fact be the result of marginal institutional commitment to internships. The future of internships and their continued success and growth depend on changing this fact.

Increased institutional commitment to internships should take the following forms:

- Internships should be required of all technical communication majors.
- Faculty intern supervisors should handle internships as part of their basic teaching load and not as part of an overload.
- With increased faculty time and additional available money, faculty supervisors should devote more time to intern and industrial host recruiting -- both of which depend heavily on personal contact.
- Internships should be more rigorously evaluated because of the increased investment in them.

Along with increased institutional commitment can come a reworking of internship program design. At the present time, students and industries are wary of cooperating with each other because each is such an unknown entity to the other. A controlled, on-campus internship -- a dry run -- can be the solution. Iowa State and Boston College already have such two-stage programs. (25)

An internship dry run would begin on campus under close supervision, and with an escalating time commitment from the intern. This method would give the student a gradual opportunity to become acclimatized to writing under stress and to the other non-classroom skills demanded in an internship. This on-campus experience could also produce a concrete example of the student's work. With this concrete evidence of achievement in hand, an industrial host may be much more receptive and willing to try out the student intern.

A redundant system of internship experiences not only increases the students' time of exposure to a professional environment, but also offers an inherent variety in their experiences. This new system can also "contain" the risk of exposure to the outside of intern failures. Failures on campus are much less visible and much less difficult to solve because this system "keeps the problems in the family."

In conclusion, internships are one of technical communications valuable teaching tools. It is also one of its most successful areas of cooperation with industry. Now is the time to grow through increased institutional commitment and increased organizational sophistication to meet the challenges of the 1980s.

NOTES

1. Internship programs as discussed in this article are restricted to off-campus work. This restriction excludes the on-campus programs that exist at Boston College and Iowa State University. All medical writing programs are similarly excluded.

2. McKee, B. K. Student internships benefit employers as well as students. Proceedings of the ITCC. 1978. p. 322.

3. Tessier, D. The value of a summer internship in technical writing. The Technical Writing Teacher, Vol. 2, No. 2. Winter 1978.

4. Wyld., L. D. Practical professional training through internships. Journal of Technical Writing and Communication, Vol. 8 (2), 1978. p. 95.

   McKee, p. 322.

5. Otto, D. H. Unconventional internships for English majors. Paper presented at 1976 MLA convention. (ERIC Document No. ED136290).

6. Hunt, D. C. Fifty views of cooperative education. (Midwest Center for Cooperative Education, University of Detroit, 1974.) p. 3, 5.

7. Hunt, p. 64. The range of total cooperative credit hours is from 3 to 27, while the total range of internship credit hours is 1 to 6.

8. Hunt, p. 45.

   Wallace, H. P. Review and synthesis of research on cooperative vocational education. Research Series No. 60. (Center for Vocational and Technical Education, Ohio State University, 1970.) p. 78.

9. Hunt, p. 37.

10. Wallace, p. 38. He refers to the Mills Study (1963).

11. Hunt, p. 7.

12. Hunt, p. 33.

13. Hunt, p. 7.

14. Hunt, p. 5.

15. "I would say most attitudes reflect a disinterestedness, and perhaps understandably so. Many faculty are not interested in a program (non-literary internship program) such as this because it concerns career options which are often alien to their own goals and interests. A lot of negative responses came from those who feel that an intern program does not demonstrate sufficient academic creditability in a humanities curriculum."
"Poetry and Pragmatism: An English Major Internship." Paper presented at NCTE convention, 1976. (ERIC Document No. ED137783). p. 7.

16. See comments (a), (e), and (h) in the responses to the Final Question of the survey to see the programs' evident desire to grow and involve more interns and hosts.

17. At the special interest group meeting for technical writing teachers at the 1979 CCCC convention, Professor John Harris pointed out this general program weakness. During his nation-wide visitation of programs, Professor Harris said that he found many good effective programs. But he also said that he found all too many program's success was overly dependent upon one or two members of their staff.

18. This dilemma was suggested by the Cushman study. Wallace, p. 26.

19. "Span of discretion" as an educational term was suggested by Dr. F. L. Goodman, University of Michigan.

20. See comment (a), (e) and (f) of the Final Question in the survey to see the programs' felt need for more controls.

21. See comment (a) of the Final Question of the survey.

22. See the answers to Question 12 of the survey.

23. "The sharing of experiences and problems, through casual conversations and seminar discussions, seems to put things (internship matters) into a better light and to bring questions to the surface."
"Handbook For Professional and Administrative Interns, Resource Development Internship Project: Midwest Advisory Committee on Higher Education." U.S. Department of Commerce, 1972. (ERIC Document No ED070397). p. 24.
See also, "Experiential Education and the Revitalization of the Liberal Arts -- A Working Paper." R. F. Sexton, University of Kentucky, Lexington, Kentucky, 1974. (ERIC Document No. ED096867).

24. Wyld, p. 93-94.

25. Nelson, J. L. Internship programs at Iowa State University. Proceedings, Conference of Directors of Technical Communication Programs, 1974. pp. 2-26.

APPENDIX I

INTERNSHIP SURVEY

General Information.

Twelve schools and colleges were surveyed. Ten schools responded. Those that did not respond were unable to because one school did not have off-campus programs, and the other school had major personnel changes.

This was a mail survey composed of five sections:

General Characteristics
Program's Operational Characteristics
Department Intern Supervisor Characteristics
Intern's Characteristics
Hosts Characteristics

The remaining pages contain tabulations of responses and summary statistics where appropriate.

Specific Information.

The specific questions and their responses are listed below. Numbers in parentheses following an answer indicate the number of times this answer was given. Where possible, the mean and median for the responses are given.

Question 1. *What year did you begin your internship program?* ____

Answers:			Mean: 8.1 years old
	1958 (2)	1974 (1)	
	1971 (1)	1976 (3)	Median: 6 years old
	1972 (1)	1977 (1)	

Question 2. *Since you began your internship program, how many interns have you had?* _____

Answers:

5 (2)	30 (1)	Mean: 41.2 interns
10 (1)	50 (1)	Median: 15 interns
12 (1)	60 (1)	
15 (2)	210 (1)	

Question 3. *After completing their internship, how many interns found work as technical writers, or in fields closely related to technical writing?* _____

Answers:

50% (1)	Mean: 74.7%
66.6% (6)	Median: 66.6%
100% (3)	

Question 4. *How often have internship hosts taken the time to note their pleasure with your interns by writing a note or phoning? Often ____ Occasionally ____ Seldom ____ Never ____*

Answers:

Always (1)
Often (6)
Occasionally (3)

Program's Operational Characteristics

Question 5. *Is the internship required of the technical writing majors? Yes ____ No ____*

Answers:

Yes (3)
No (7)

Question 6. *Before students are placed in an internship, how many specifically technical writing courses must a student take? (0, 1, 2, 3, 4, or more)* _____ *These courses taken before the internship usually total* _____ *credit hours.*

Answers: Number of Courses	Number of Credit Hours
1 (3)	3 (2)
1-4 (1)	3-6 (1)
2 (4)	3-12 (1)
2-3 (1)	6 (3)
3 (1)	8 (1)
	9 (1)
	8-12 (1)
Mean: 1.9 courses	Mean: 6.3 credit hours
Median: 2 courses	Median: 6 credit hours

Question 7. *When does the internship take place in relation to other technical writing courses? (before, after, in the middle of)* _____

Answers:
After (6)
In the middle of (3)

Question 8. *When does the internship take place in relation to technical or scientific courses? (before, after, in the middle of)* _____

Answers:
After (2)
In the middle of (6)

Question 9. *What is the number of credit hours awarded for an internship? _____ What percentage of the total credit hours taken in the technical writing does this represent? _____*

Answers: Number of Credit Hours		Percent of Total Credit	
1-6	(1)	4%	(1)
2	(1)	8%	(1)
3	(4)	10%	(2)
3-5	(1)	12.5%	(1)
3-6	(1)	16%	(1)
4	(1)	25%	(2)
6	(1)		

Mean: 4.6 credit hours
Median: 4 credit hours

Mean: 13.8% of the total
Median: 11.25% of the total

Question 10. *Are interns paid for their work? Yes ____ No ____ If you answer yes, what percentage of a regular employee's salary do the intern's receive? 100% ____ 75% ____ 50% ____ 25% ____ A nominal sum ____*

Answers: Yes (6)
No (4)

Percent of Regular Salary
100% (3)
Nominal Sum (3) - a sum ranging from the federal minimum wage up to $5.00 per hour

Question 11. *Do interns work alone or in contact with other interns either at the site or on campus? Alone ____ In contact ____*

Answers: Alone (7)
In contact (2)

Question 12: *In addition to their outside writing assignments for the host company, interns are required to*

____ *Keep a journal*
____ *Write a paper on their experiences at the conclusion*
____ *Give an oral report on their experiences*
____ *Meet on campus (if you check this item, please describe the typical meeting)*
____ *Read an accompanying text (please cite the text title and author)*
____ *Other (please describe)*
____ *Do nothing beyond the outside writing assignments for the host company*

Answers: (many multiple answers)

Keep a journal (2)
Write a paper (7)
Give an oral report (5)
Meet on campus (5)
---------- explanations of the content of these meetings was as follows:

- Student and advisor go over student's work for organization. Also discuss the work environment, tasks, etc.
- Review work assignments and typical experiences
- Meet with me every other week to talk about what they've done, what they would like to learn, what puzzles them, etc.

Other (1)
---------- explanation of this was as follows:

- Weekly assignments designed to encourage them to see their department in the total context of the organization's mission

Do nothing (1)

Department Intern Supervisor Characteristics

Question 13. *Is there an intern supervisor for each internship? Yes ____ No ____*

Answers: Yes (9)
No (1)

Question 14. *Does the supervisor visit the internship site? Yes ____ No ____ If you answer yes, how often per internship does the supervisor visit?* _____

Answers: Yes (9,
No (1)

How often are the visits?

Once (3)
Occasionally or irregularly (5)

Question 15. *Does the supervisor assign the grade for the internship? Yes ____ No ____ If you answer yes, what is the basis for the grade?* _____
If you answer no, who does assign the grade and on what basis is the grade assigned? _____

Answers: Yes (9)
No (1)

Explanations of Grading are as follows:

Number of hours worked (1)
Host evaluation (7)
Quality of work (1)
Final paper (1)

Question 16. *Is there only one designated intern supervisor? Yes ____ No ____ Are there a number of designated intern supervisors? Yes ____ No ____ If there is a designated intern supervisor(s), on what basis was the faculty supervisor selected?* _____

Answers: Only one - Yes (6) No (3) A number of supervisors - Yes (3)

Explanations of why supervisors are chosen include:

- Extended experience in the field, we selected ourselves
- Chief advisor to all technical writing students
- Years in the field, experience and familiarity with students and programs
- Interest and availability

Question 17. *How many interns does an intern supervisor normally handle per semester or quarter?* _____

Answers:					
1 (2)	2-4 (2)	Mean:	2.5 interns
1-2 (4)	10-15 (1)	Median:	1.5 interns

Question 18. *How much time does an intern supervisor devote to a typical internship? (e.g. 10 hours per internship)* _____

Answers:					
4-5 (1)	10-20 (1)	Mean:	11.6 hours per intern
5 (1)	18 (1)		
10 (2)	20 (1)	Median:	10 hours per intern

Intern Characteristics

Question 19. *How are interns selected for participation in the internship program?*

Answers:

- Majors in technical communication are required to take at least one internship a quarter in length; in effect, then, they select themselves. In practice, however, we attempt to match an internship to the student's career goals, need, interests, etc. The host company must also find the student acceptable; in practice, this last requirement tends to be a formality.
- They sign up after taking the intermediate course.
- By their interest and ranking of their qualifications.
- Required course.
- They are interviewed and screened on campus by the faculty and again by the company.
- All of the majors are eligible and encouraged to take an internship. Generally they are seniors. They are given leads but most set up their own job interviews, make up resumes, etc.
- Grades, interest, desire for internship

Question 20. *If you were to describe a typical internship, what percentage of time would be spent in each of the following areas: Writing _____ Graphics _____ Production _____ Multimedia _____ Other (describe)*

_____

Answers:

Writing:		Graphics:	
50%	(2)	2%	(1)
60%	(2)	20%	(1)
75%	(2)	25%	(1)
80%	(1)	45%	(1)
90%	(1)		
Mean:	68.5%	Mean:	23%
Median:	67.5%	Median:	23%

Production:		Multimedia:	
5%	(2)	3%	(1)
10%	(1)	25%	(1)
20%	(1)		
25%	(2)	Mean:	14%
Mean:	15%	Median:	14%
Median:	15%		

Other (editing): 30% (1)

Question 21. *How much time must interns devote to the internship; for how long?*

___ *1-4 hours per week*	*For 1-4 weeks* ___
___ *5-8 hours per week*	*For 5-8 weeks* ___
___ *9-12 hours per week*	*For 9-12 weeks* ___
___ *13-16 hours per week*	*For 13-16 weeks* ___
___ *17-20 hours per week*	*For 17-20 weeks* ___
___ *21-24 hours per week*	*For 21-24 weeks* ___
___ *25 or more hours per week*	*25 or more weeks* ___

Answers:

5 to 8 hours per week (1)	5 to 8 weeks (2)
13 to 16 hours per week (3)	9 to 12 weeks (4)
17 to 20 hours per week (1)	13 to 16 weeks (3)
25+ hours per week (4)	
Mean: 18.6 hours per week	Mean: 10.9 weeks
Median: 18.5 hours per week	Median: 10.5 weeks

Question 22. *Please supply the names and current addresses of interns I may contact for furthern information.*

Answers: (All responses to this question were deleted because of recent rulings in confidentiality laws.)

Host Characteristics

Question 23. *Do you have hosts who accept interns on a regular basis? Yes ____ No ____ If you answer yes, how many hosts do this ?* _____

Answers: Yes (9)
No (1)

Number of regular sites:
2 (1)
3 (1)
6 (2)
10 (1)
Most (2)

Question 24. *Who solicited the help of the host?*
solicited by department ___
solicited by supervisor ___
solitied by intern ___
unsolicited ___
If solicited, how was the contact made and developed? _____

Answers: Department (5)
Supervisor (8)
Intern (4)
Unsolicited (3)

Solicited contact was made by:

- Through friends in the field of scientific and technical communication normally
- Phone and personal contact
- In most cases, through contact with an individual in each host agency
- Blanket mailing; personal contacts

Question 24. (continued)

- Usually through former graduates of our school, through business contacts of department members, or through our Cooperative Education Department.
- STC meetings (if by supervisor); directly by interns

Question 25. *Do hosts get a preview of their intern in order to approve of him or her? Yes ____ No ____ If you answer yes, how is the preview done?*

_____ *By resume*
_____ *By transcript*
_____ *By interview with prospective interns*
_____ *By discussion with intern supervisor*
_____ *Other (please describe)* _____

Answers: Yes (9)
No (1)

Resume (7)
Transcript (3)
Interview (9)
Discussion with supervisor (6)

Question 26. *Do hosts perform any task for the intern which would not normally be done for any new employee? Yes ____ No ____ If you answer yes, please describe the tasks.* _____

Answers: Yes (6)
No (3)

Host tasks include:

- They are likely, at least, to give interns more orientation and instructions than they would give to a new employee.
- Intensive training sessions.
- We insist upon an extensive orientation session.
- Provide more supervision. Most hosts agree to a written evaluation, though some prefer to do this orally.
- Evaluate intern periodically.
- They treat the entire activity as part of college work, as opposed to career work--means many things, such as job rotation, meeting the chief executive, doing work to take back to school, etc.

Final Question *This concludes an inventory of what your internship program is presently doing. As a final comment, please point out the two or three areas where you would like to see some changes in order to strengthen your program.*

Answers:

(a) Essentially, we have kept the number of host companies (or organizations) small in order to remain sure that our students would receive an effective educational experience. Now that the number of students is growing rather rapidly, we need to increase the number of hosts, as well as the range of experiences they offer. At the same time, we must be sure that the hosts tread the fine line between exploiting free help and burdening themselves with more instructional responsibility than they can afford. Achieving this dual objective will require more supervisory effort than we have given to the internship program in the past. We also hope to improve the final reports which students write at the end of their internships. Too many of them look upon this report as a kind of make-work. Consequently, they tell us what they did; they fail to observe sufficiently and reflect on where they worked and why they were doing what they did, missing any number of lessons which they could have learned about the profession which they intend to enter.

(b) More students willing to intern.

(c) We need more of them, so that students can have the professional experience.

(d) We need to give the interns work in oral presentation. We need to strengthen the two courses in graphic design required of the students.

(e) Additional industrial contact. Some no-writing interns--e.g. radio, TV, production, graphics. Intern exchanges with university and industry.

(f) Better host evaluation and more contact between organization and host.

Final Question. (continued)

(g) Strengthen evaluating interns.

(h) More opportunities for students. More time for supervisors to meet with students. Specify certain courses as a prerequisite.

APPENDIX 2

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INTERNSHIP PROJECT PHASES

STEP ONE Initial meeting and determination of problems, audience, and information sources.
Student will generate a Project Definition Memo summarizing meeting and a contract of obligations.

STEP TWO Information gathering.

STEP THREE Writing Plan review and approval prior to any commitment to writing. A Statement of Due Dates for professor.

STEP FOUR Review cycle.
Student will generate periodic Progress Report Memos every three weeks.

STEP FIVE Completed final document available for printing and distribution by you.

WE NEED:

- Your expertise during information gathering, and review and approval stages.
- Any examples of machine-generated reports or screens to be included in the completed document.
- Any background documentation from the vendor.

OUR FACULTY MEMBER will meet with you at least once during the course of the internship to discuss the student's work, and will be available at other times to respond to any problems.

R. John Brockmann
268-2209 (6410)
Humanities Department
Clarkson College

Text to buy:
Writing for the Reader ($4.50)

Text to consult on reserve:
Psychology of Computer Programming

Minutes of the Meeting of the Council for Programs
for Technical and Scientific Communication held at
Buena Vista, Florida, February 14-15, 1980

The meeting was called to order by President Tom Warren at 1:15. Warren reminded the members that dues for 1980 should be paid.

Warren called for committee reports.

Publications report - David Carson

Carson explained that the 1979 Proceedings have been delayed, but should be mailed to members by the end of March. He reminded the participants about the graphics/art competition, and urged those present to encourage students to enter. To date, only two entries have been received, both from the University of Minnesota.

Treasurer's Report - Carolyn Miller

The balance in the treasury is $945.25. A bill for $30 was submitted at the meeting.

Old Business

Warren described the orange book and the programs booklet. He asked the participants to consider a revision of the orange book. There was considerable discussion, but no decisions were reached. Warren announced that there are approximately 200 directories left.

Carson moved and Muller seconded that the CPTSC formally thank Roland Browne and his university for hosting the 1980 conference. The motion carried unanimously.

The site for the 1981 meeting was discussed. Mike White offered the University of Washington at Seattle. There was some concern expressed that members might find it difficult to finance a trip to Seattle, and that the location might reduce the number attending. Others suggested that members who have been unable to attend meetings in the East or in the South might be able to attend a meeting in Washington, and there is some advantage in going to different locations because different people are given the opportunity to attend. Roland Browne moved we hold the meeting in Seattle in 1981. Muller seconded. The motion carried. The 1982 meeting will be held in Pittsburgh.

Carson suggested everyone introduce him/herself, since several new people were attending. Two suggestions for next year's meeting were made: that the meeting be less structured and that some open sessions be planned to discuss common problems.

New Business

Miller asked if there is any flyer or other printed material available to send people who want information about the organization. She also raised the issue of an interim letterhead and application forms for membership. The executive committee will make arrangements for printing interim letterhead stationery, and Cottrell will draft a flyer and application form.

A discussion on establishing corporate memberships followed. Muller moved that CPTSC charge $100 for a corporate membership. Roland Browne seconded. Smith suggested that the constitution might have to be amended to accommodate the corporate membership fee. White suggested we pull out the membership section and rewrite it to eliminate references to specific amounts for membership. Muller amended his original motion to read that CPTSC charge $100 for a corporate membership for the coming year, this figure to be used until the constitution is amended. Browne seconded. Motion carried. White suggested the directory should be made available to corporations.

Election of officers.

The following slate of nominations was offered:

President	David Carson
Vice President	Virginia Book
Secretary	Beekman Cottrell
Treasurer	Carolyn Miller
Member at large	Mike White and Jim Miles

Muller moved that the nominees for president, vice president, secretary and treasurer be elected by unanimous consent. Motion carried.

A secret ballot was called for to elect the member at large. Mike White was elected.

Warren said a membership list and a copy of the constitution would be sent to all current members (41).

Warren stepped down from the presidency and turned the meeting over to Carson. Carsor asked Warren to conduct the rest of the conference.

Warren called for any further new business. Since there was none, the business meeting was adjourned at 2:05

Respectfully submitted,

Virginia Book

Virginia Book
Secretary

COUNCIL FOR PROGRAMS IN TECHNICAL AND SCIENTIFIC COMMUNICATION

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